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Front cover image: Tītī feather, drawn as part of the Kia Mau Te Tītī Mō Ake Tōnu project, Rakiura Island, New Zealand. Māori use the term tītī for a chick, or more generally for the species Sooty Shearwater *Ardenna grisea*. (Line drawing: Maggie Atkinson, pencil and watercolour on paper.)

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REVIEWS

NUMBER AND DISTRIBUTION RECORDS OF CASPIAN TERN *HYDROPROGNE CASPIA* IN INDONESIA, WITH SPECIAL REFERENCE TO SUMATRA

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ABSTRACT

IQBAL, M., NOOR, Y.R., MULYANA, D., MARTINI, H., HASUDUNGAN, F., FEBRIANTO, I., TIRTANINGTYAS, F.N., SETIAWAN, A., YUSTIAN, I. & ZULKIFLI, H. 2020. Number and distribution records of Caspian Tern *Hydroprogne caspia* in Indonesia, with special reference to Sumatra. *Marine Ornithology* 48: 297–301.

We summarize all reports of Caspian Tern *Hydroprogne caspia* recorded in Indonesia, with particular focus on Sumatra (1983–2019). There were 29 records in total, which together indicate that the Caspian Tern is a regular visitor to Indonesia, in contrast to previous assumptions that it is rare. This species has been recorded during the non-breeding period (September to March in Indonesia, and August to April in Sumatra) in small numbers ranging from one to 40 birds. Many potential sites for this species, particularly along east coast of Sumatra, have still not been well explored. Additional search efforts will advance our knowledge of Caspian Tern and other seabirds that occur in Indonesia.

Key words: Caspian Tern, historical records, Indonesia, Sumatra

Caspian Tern *Hydroprogne caspia* is a monotypic, cosmopolitan species occurring in North America, North Europe, Africa, Madagascar, Asia, Australia, and New Zealand (del Hoyo & Collar 2014, Gochfeld & Burger 1996). In the Northern Hemisphere, it winters in the Caribbean, and on the coasts of Africa, the Indian Ocean, southern China, and Southeast Asia to the Thai-Malay Peninsula and Sumatra (Harrison 1983, Wells 1999). In Australia, the Caspian Tern breeding season occurs March–November (Higgins & Davies 1996, Dunlop & McNeill); in New Zealand, birds breed October–December (Barlow & Dowding 2002). The global population is estimated at 250 000–470 000 individuals (Birdlife International 2020), and the Southeast Asian population is estimated at 10 000–25 000 birds (Delany & Scott2006).

In Indonesia, the Caspian Tern is a rare, mostly coastal migrant, but it is occasionally present within inland wetlands (Eaton *et al*. 2016). The species is a vagrant in Greater Sundas, recorded rarely on the coast of east Sumatra and in Sabah, Sarawak, and Brunei (MacKinnon & Phillipps 1993, Mann 2008). Van Marle & Voous (1988) stated that Caspian Tern is a winter visitor in Sumatra. It has been reported in Wallacea, at Timor, in October and January, possibly having migrated from Australia (White & Bruce 1986). Caspian Tern is a scarce visitor in New Guinea, mainly to the coastal Trans-Fly Region, but it is not clear whether this species occurs in Indonesian Papua (west New Guinea) (Pratt & Beehler 2015, Gregory 2017).

Caspian Tern is a highly distinctive bird, and any records that appear to be ambiguous or unconfirmed should be rejected. Based on the ease of its identification, we compiled and summarized all published and unpublished records of the species in Sumatra and Indonesia, including information found on social media and from internet sources, e.g., Facebook groups of local birdwatchers, eBird (eBird 2017), Global Biodiversity Information Facility (GBIF 2020), and iNaturalist (iNaturalist 2020). We screened all information for authenticity and correct species identification.

Since they were first reported in Jambi province in 1983, 29 records of Caspian Tern have accumulated in Indonesia and Sumatra (Table 1). There are eight records of Caspian Tern observed outside Sumatra Island. In Sumatra, the locations where this species has been observed can be divided into three major areas along the east coast: Percut (North Sumatra, *ca.* 03°43′N, 098°46′E), Cemara beach and Berbak (Jambi province, *ca.* 01°28′S, 104°20′E), and the Banyuasin Peninsula (South Sumatra province, *ca*. 02°14′S, 104°50′E). No inland records have been reported (Fig. 1). The number of Caspian Terns per record in Sumatra is relatively small, in the range of 1–40 birds. One Caspian Tern was ringed with the Sumatra flag on 17 January 2010 at Cemara Beach (Noni & Londo 2010), but it has not been resighted.

Many species of terns are migratory, breeding in the extreme northern and southern latitudes and only frequenting the tropics in

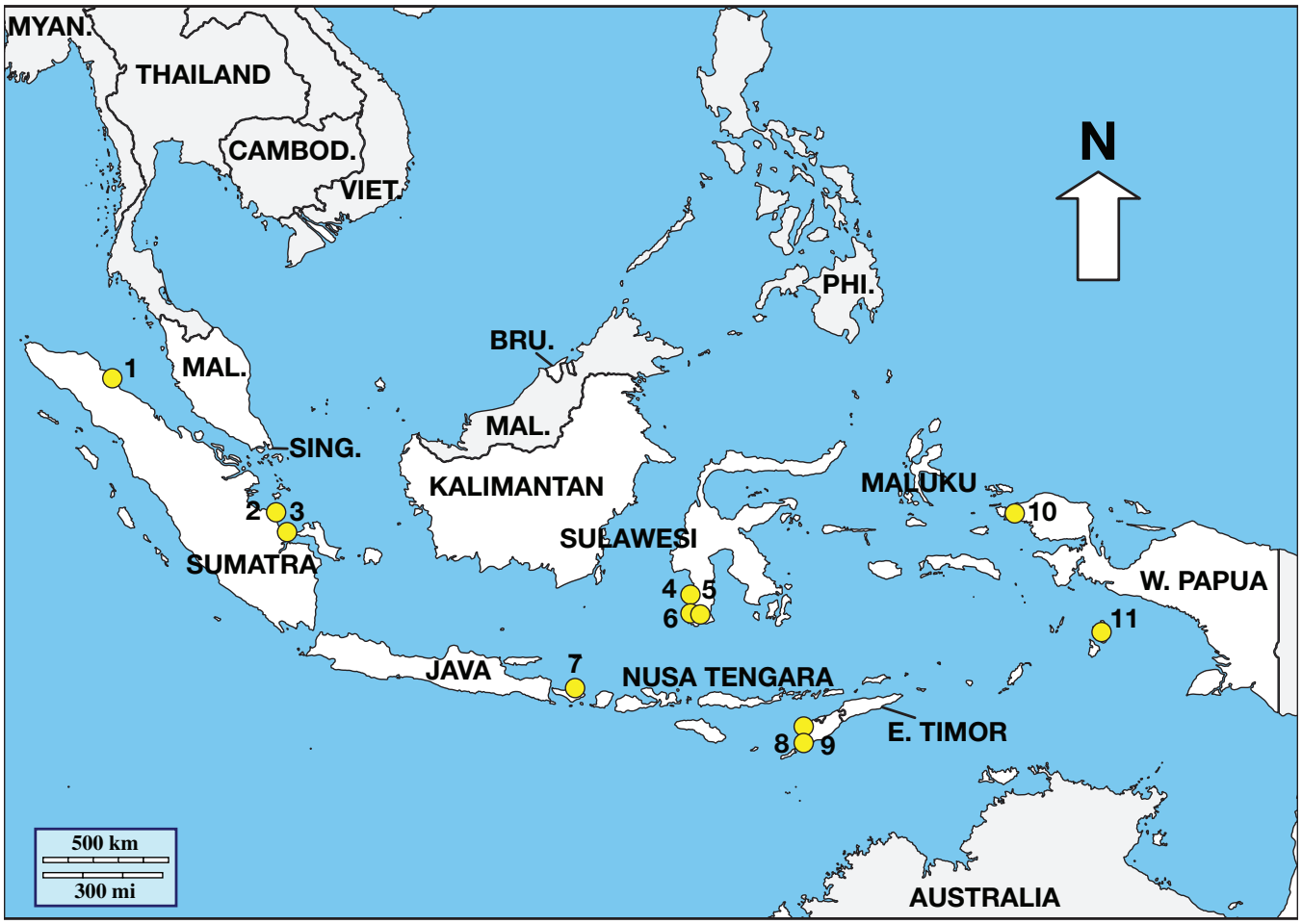

Fig. 1. Locations of Caspian Tern recorded in Indonesia and Sumatra. Numbers refer to adjacent yellow circles: (1) Percut and adjacent areas, North Sumatra province; (2) Cemara beach and Berbak, Jambi province; (3) Banyuasin peninsula, South Sumatra province; (4) Maros, South Sulawesi province; (5) Losari beach, South Sulawesi province; (6) Makasar old harbour, South Sulawesi province; (7) Sanur beach, Bali province; (8) Bipolo, East Nusa Tenggara province; (9) Kupang, East Nusa Tenggara province; (10) Sorong, West Papua province; and (11) Aru island, Maluku province.

their respective winter seasons (MacKinnon & Phillipps 1993). In the Malay Peninsula, the Caspian Tern is a locally common non-breeding visitor occurring in small numbers on the west coast and south to Singapore, where it is rare (Wells 1999, Jeyarajasingam & Pearson 2012). Its presence has been reported at 15 sites in the Malay Peninsula (eBird 2017), with the largest number—100 birds—observed at the Kapar Power Station, Selangor (Craig 2017). In Singapore, two observations of one single bird were reported at two locations (eBird 2017).

A summary of records indicate that Caspian Tern is a regular non-breeding visitor, occurring in small numbers, in Indonesia and Sumatra (Table 1, Fig. 2). Records from Indonesia and Sumatra span September–March and August–April, respectively. In Sumatra, most records occur in October (5), followed by December (4); other months have one to two records (August, September, November, January, and April have two records; February has one record). No records of Caspian Tern were reported in Indonesia and Sumatra from May–July or during the Northern Hemisphere summer breeding season.

Accurate spatial information on Caspian Tern and other seabirds in Indonesia are needed to assess population trends in this region. An increasing number of birdwatchers in Indonesia and Sumatra, supported by high magnification optics, has led to increasing documentation of vagrant and migratory seabirds during the last decade, which has complicated accurate assessment of population dynamics (Iqbal & Albayquni 2016, Hasyim *et al*. 2019, Tirtaningtyas & Yordan 2017, Iqbal *et al*. 2020, Setiawan *et al*. 2020). Many potential sites along the east coast of Sumatra have not been rigorously explored, particularly in Aceh, Riau, Bangka-Belitung, and Lampung province. More extensive, quantified search efforts of coastal seabirds around the mangrove beaches of these areas is required to advance our knowledge of Caspian Tern and other seabirds in Sumatra.

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TABLE 1
Number and distribution records of Caspian Tern in Indonesia and Sumatra, listed by date

No.	Date	No. of Caspian Terns recorded	Sites	Sources
1	14 Oct 1983	2	Cemara beach, Jambi province	van Marle & Voous 1988, Silvius *et al.* 1986
2	27 Oct 1984	1	Cemara beach, Jambi province	van Marle & Voous 1988, Silvius *et al.* 1986
3	28 Oct 1984	3	Cemara beach (near Labuhan Pering), Jambi province	van Marle & Voous 1988, Silvius *et al.* 1986
4	24 Nov 1984	8	Cemara beach (near Tanjung Jabung), Jambi province	van Marle & Voous 1988, Silvius *et al.* 1986
5	Feb–Mar 1985	Present, no count	Kupang bay, East Nusa Tenggara province	Trainor & Hidayat 2014
6	Aug–Oct 1985	Present, no count	Kupang bay, East Nusa Tenggara province	Trainor & Hidayat 2014
7	02 Mar 1988	1 (possibly this species)	Aru island, Maluku, Maluku province	Bishop 2017
8	01 Dec 1988	11	Banyuasin Peninsula, South Sumatra province	Verheugt *et al.* 1993, Holmes 1996
9	01 Aug 1989	2	Banyuasin Peninsula, South Sumatra province	Verheugt *et al.* 1993, Holmes 1996
10	23–30 Dec 1995	6	Percut, North Sumatra province	Crossland *et al.* 2012, van Balen *et al.* 2013
11	15–17 April 2001	Present, no count	Jambat river, Berbak, near Cemara beach, Jambi province	Wetland International Indonesia Programme 2001
12	30 Oct 2002	3	Cemara beach, Jambi province	Hasudungan & Wardoyo 2002
13	31 Aug 2003	2	Dinding river, Banyuasin Peninsula, South Sumatra province	Iqbal 2002
14	28 Apr 2006	1	Banyuasin Peninsula, South Sumatra province	MI pers. obs
15	22 Dec2009	1	Cemara beach, Jambi province	FNT & IF pers. obs
16	17 Jan 2010	1	Cemara beach, Jambi province	Noni & Londo 2010
17	02 Oct 2010	1	Datuk Alam beach, near Percut, North Sumatra province	Andrew Crossland pers. comm.
18	04 Sept 2012	1	Sejara beach, near Percut, North Sumatra province	Andrew Crossland pers. comm.
19	28 Jan 2017	40	Banyuasin Peninsula, South Sumatra province	YRN pers. obs.
20	08 Sept 2017	6	Banyuasin Peninsula, South Sumatra province	MI, DM & HM pers. obs.
21	12 Sept 2017	2	Maros, South Sulawesi province	Upton 2017
22	02 Oct 2017	2	Losari beach, South Sulawesi	Evans *et al.* 2017
23	20 Oct 2017	Present, no count	Makasar old harbour, South Sulawesi province	Buskirik 2017
24	20 Feb2018	6	Banyuasin Peninsula, South Sumatra province	MI, DM & HM pers. obs
25	04 Dec 2018	4	Sanur beach, Bali province	Gardner & Gardner 2017
26	04 Feb 2019	2	Sorong, West Papua province	Grabin & Grabin 2017
27	04 Sept 2019	1	Bipolo, East Nusa Tenggara province	Ovin *et al.* 2019
28	20–30 Nov 2019	15	Cemara beach, Jambi province	IF pers. obs.
29	21 Dec 2019	20	Banyuasin Peninsula, South Sumatra province	MI & DM pers. obs.

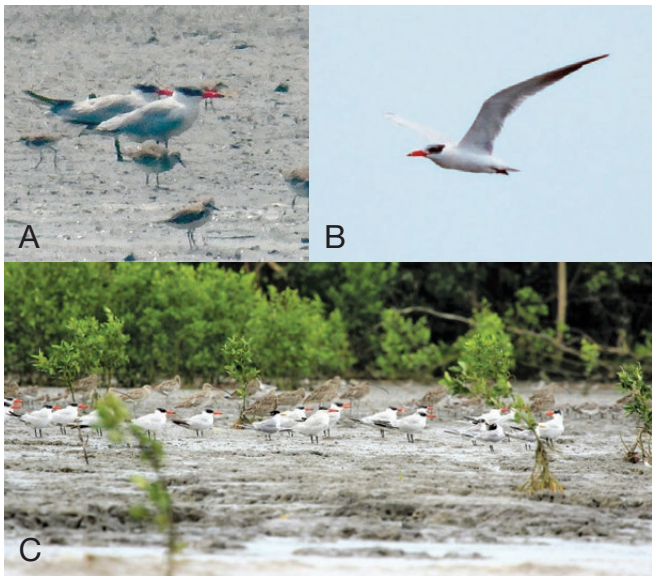

Fig. 2. Caspian Terns found in Sumatra, Indonesia. (A) Two terns encountered among shorebirds on 21 December 2019 along the Banyuasin Peninsula, Banyuasin district, South Sumatra province; (B) tern observed in flight on 22 December 2009 at Cemara Beach, Tanjung Jabung Timur district, Jambi province; (C) terns observed on 28 January 2017 along the Banyuasin Peninsula, Banyuasin district, South Sumatra province. Photos taken by Muhammad Iqbal [A], Fransisco Noni Tirtaningtyas [B], and Yus Rusila Noor [C].

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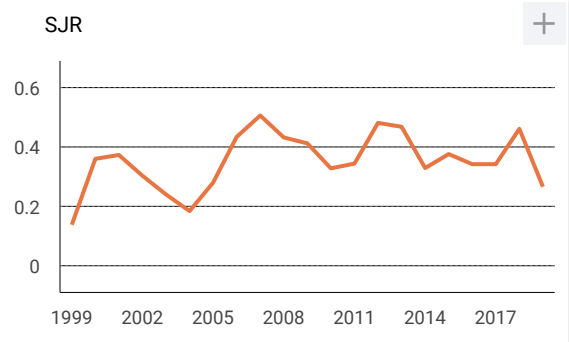

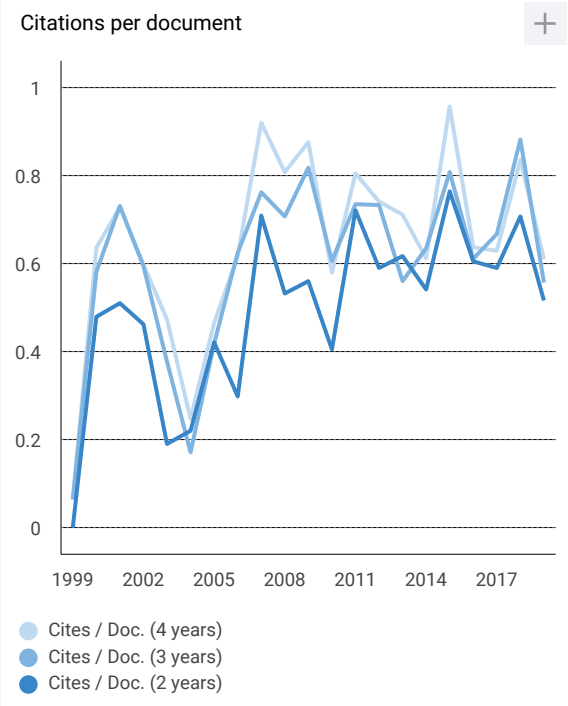

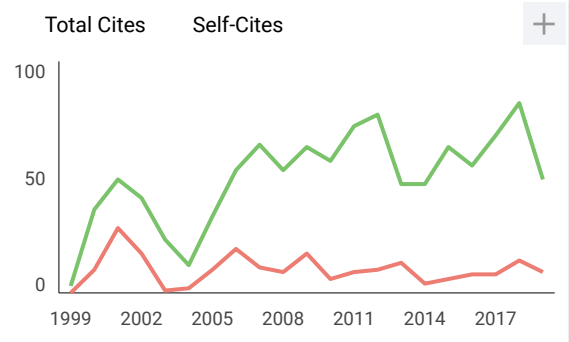

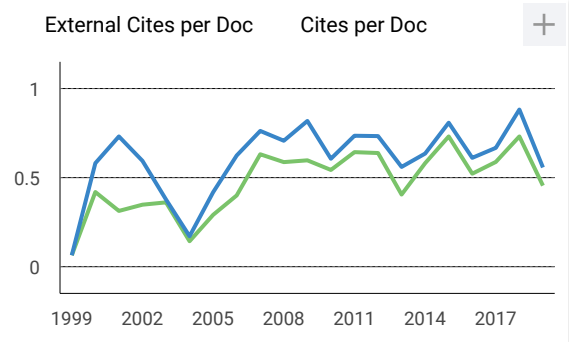

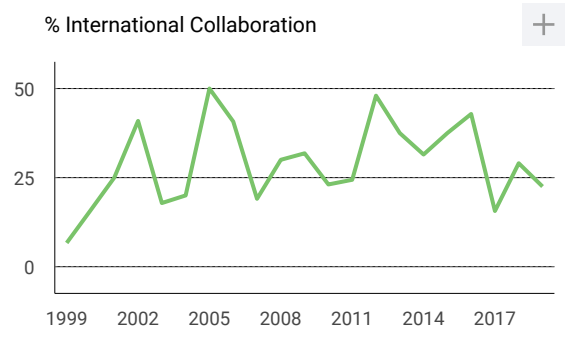

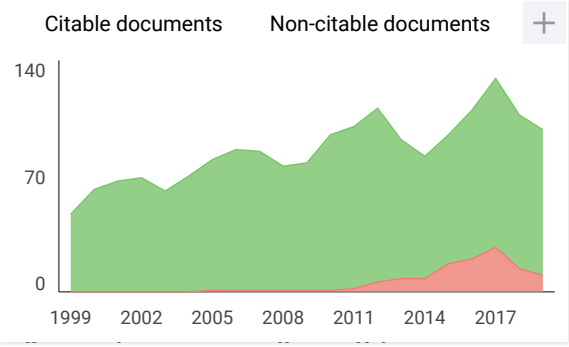

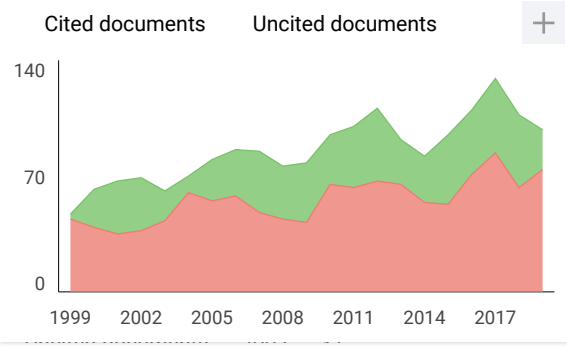

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[2] BOND, A.L. & HOBSON, K.A. 2012. Reporting stable-isotope ratios in ecology: Recommended terminology, guidelines and best practices. *Waterbirds* 35: 324-331. doi:10.1675/063.035.0213

[3] BOND, A.L. & HOBSON, K.A. 2012. Authors' Erratum. *Waterbirds* 35(3). doi:10.1675/063.035.0318

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HUNT, G.L., JR. & HUNT, M.W. 1975. Reproductive ecology of the Western Gull: The importance of nest spacing. *The Auk* 92: 270–279. doi:10.2307/4084556

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R DEVELOPMENT CORE TEAM 2018. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: The R Foundation for Statistical Computing.

STRICKLAND, D. & OUELLET, H. 2011. Canada Jay (*Perisoreus canadensis*), version 2.1. In: POOLE, A. (Ed.) *The Birds of North America Online.* Ithaca, USA: Cornell Lab of Ornithology. [Accessed at http://bna.birds.cornell.edu/bna/species/040 on 28 May 2015.] doi:10.2173/bna.gryjay.02.1

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NUMBER AND DISTRIBUTION RECORDS OF CASPIAN TERN HYDROPROGNE CASPIA IN INDONESIA, WITH SPECIAL REFERENCE TO SUMATRA

By Arum Setiawan

NUMBER AND DISTRIBUTION RECORDS OF CASPIAN TERN *HYDROPROGNE CASPIA* IN INDONESIA, WITH SPECIAL REFERENCE TO SUMATRA

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ABSTRACT

IQBAL, M., NOOR, Y.R., MULYANA, D., MARTINI, H., HASUDUNGAN, F., FEBRIANTO, I., TIRTANINGTYAS, F.N., SETIAWAN, A., YUSTIAN, I. & ZULKIFLI, H. 2020. Number and distribution records of Caspian Tern *Hydroprogne caspia* in Indonesia, with special reference to Sumatra. *Marine Ornithology* 48: 297–301.

We summarize all reports of Caspian Tern *Hydroprogne caspia* recorded in Indonesia, with particular focus on Sumatra (1983–2019). There were 29 records in total, which together indicate that the Caspian Tern is a regular visitor to Indonesia, in contrast to previous assumptions that it is rare. This species has been recorded during the non-breeding period (September to March in Indonesia, and August to April in Sumatra) in small numbers ranging from one to 40 birds. Many potential sites for this species, particularly along east coast of Sumatra, have still not been well explored. Additional search efforts will advance our knowledge of Caspian Tern and other seabirds that occur in Indonesia.

Key words: Caspian Tern, historical records, Indonesia, Sumatra

Caspian Tern *Hydroprogne caspia* is a monotypic, cosmopolitan species occurring in North America, North Europe, Africa, Madagascar, Asia, Australia, and New Zealand (del Hoyo & Collar 2014, Gochfeld & Burger 1996). In the Northern Hemisphere, it winters in the Caribbean, and on the coasts of Africa, the Indian Ocean, southern China, and Southeast Asia to the Thai-Malay Peninsula and Sumatra (Harrison 1983, Wells 1999). In Australia, the Caspian Tern breeding season occurs March–November (Higgins & Davies 1996, Dunlop & McNeill); in New Zealand, birds breed October–December (Barlow & Dowding 2002). The global population is estimated at 250 000–470 000 individuals (Birdlife International 2020), and the Southeast Asian population is estimated at 10 000–25 000 birds (Delany & Scott2006).

In Indonesia, the Caspian Tern is a rare, mostly coastal migrant, but it is occasionally present within inland wetlands (Eaton *et al.* 2016). The species is a vagrant in Greater Sundas, recorded rarely on the coast of east Sumatra and in Sabah, Sarawak, and Brunei (MacKinnon & Phillipps 1993, Mann 2008). Van Marle & Voous (1988) stated that Caspian Tern is a winter visitor in Sumatra. It has been reported in Wallacea, at Timor, in October and January, possibly having migrated from Australia (White & Bruce 1986). Caspian Tern is a scarce visitor in New Guinea, mainly to the coastal Trans-Fly Region, but it is not clear whether this species occurs in Indonesian Papua (west New Guinea) (Pratt & Beehler 2015, Gregory 2017).

Caspian Tern is a highly distinctive bird, and any records that appear to be ambiguous or unconfirmed should be rejected. Based on the ease of its identification, we compiled and summarized all published and unpublished records of the species in Sumatra and Indonesia, including information found on social media and from internet sources, e.g., Facebook groups of local birdwatchers, eBird (eBird 2017), Global Biodiversity Information Facility (GBIF 2020), and iNaturalist (iNaturalist 2020). We screened all information for authenticity and correct species identification.

Since they were first reported in Jambi province in 1983, 29 records of Caspian Tern have accumulated in Indonesia and Sumatra (Table 1). There are eight records of Caspian Tern observed outside Sumatra Island. In Sumatra, the locations where this species has been observed can be divided into three major areas along the east coast: Percut (North Sumatra, *ca.* 03°43′N, 098°46′E), Cemara beach and Berbak (Jambi province, *ca.* 01°28′S, 104°20′E), and the Banyuasin Peninsula (South Sumatra province, *ca.* 02°14′S, 104°50′E). No inland records have been reported (Fig. 1). The number of Caspian Terns per record in Sumatra is relatively small, in the range of 1–40 birds. One Caspian Tern was ringed with the Sumatra flag on 17 January 2010 at Cemara Beach (Noni & Londo 2010), but it has not been resighted.

Many species of terns are migratory, breeding in the extreme northern and southern latitudes and only frequenting the tropics in

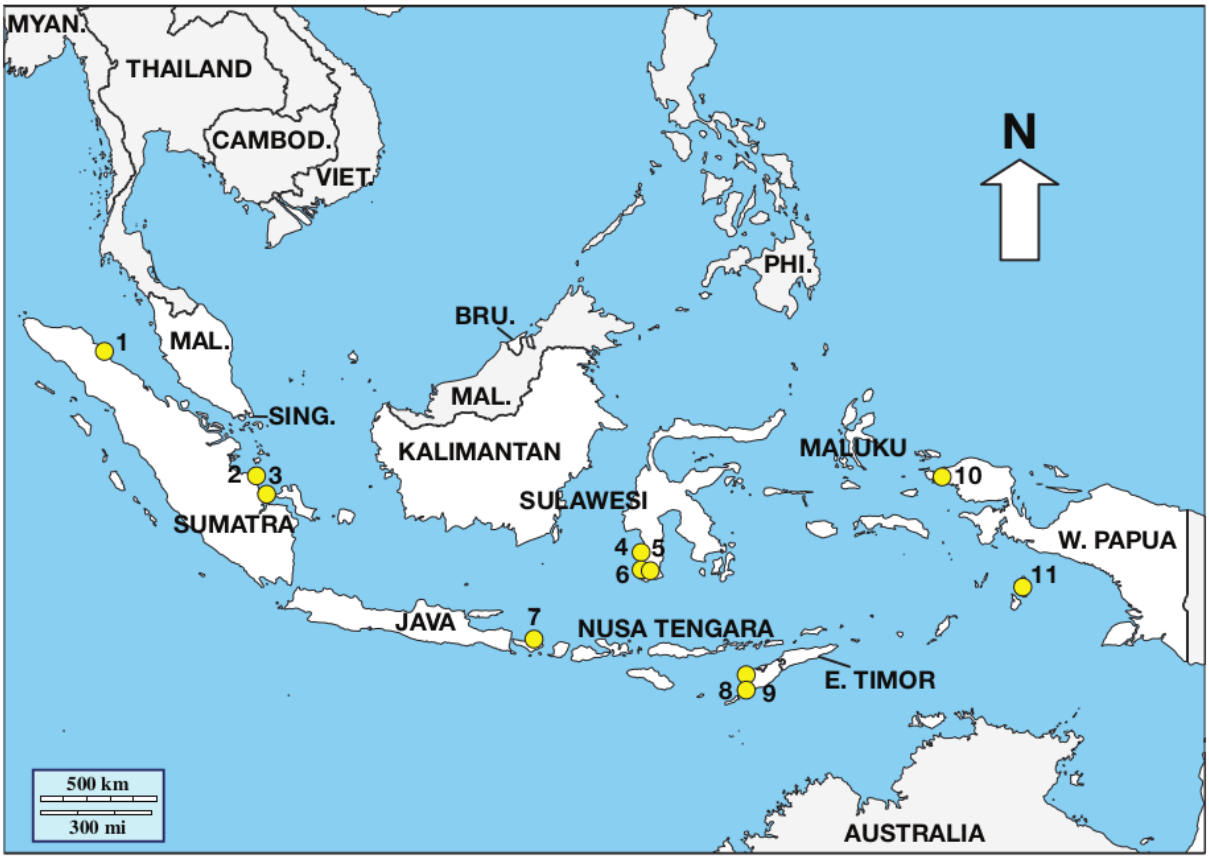

Fig. 1. Locations of Caspian Tern recorded in Indonesia and Sumatra. Numbers refer to adjacent yellow circles: (1) Percut and adjacent areas, North Sumatra province; (2) Cemara beach and Berbak, Jambi province; (3) Banyuasin peninsula, South Sumatra province; (4) Maros, South Sulawesi province; (5) Losari beach, South Sulawesi province; (6) Makasar old harbour, South Sulawesi province; (7) Sanur beach, Bali province; (8) Bipolo, East Nusa Tenggara province; (9) Kupang, East Nusa Tenggara province; (10) Sorong, West Papua province; and (11) Aru island, Maluku province.

their respective winter seasons (MacKinnon & Phillipps 1993). In the Malay Peninsula, the Caspian Tern is a locally common non-breeding visitor occurring in small numbers on the west coast and south to Singapore, where it is rare (Wells 1999, Jeyarajasingam & Pearson 2012). Its presence has been reported at 15 sites in the Malay Peninsula (eBird 2017), with the largest number—100 birds—observed at the Kapar Power Station, Selangor (Craig 2017). In Singapore, two observations of one single bird were reported at two locations (eBird 2017).

A summary of records indicate that Caspian Tern is a regular non-breeding visitor, occurring in small numbers, in Indonesia and Sumatra (Table 1, Fig. 2). Records from Indonesia and Sumatra span September–March and August–April, respectively. In Sumatra, most records occur in October (5), followed by December (4); other months have one to two records (August, September, November, January, and April have two records; February has one record). No records of Caspian Tern were reported in Indonesia and Sumatra from May–July or during the Northern Hemisphere summer breeding season.

Accurate spatial information on Caspian Tern and other seabirds in Indonesia are needed to assess population trends in this region. An increasing number of birdwatchers in Indonesia and Sumatra, supported by high magnification optics, has led to increasing documentation of vagrant and migratory seabirds during the last decade, which has complicated accurate assessment of population dynamics (Iqbal & Albayquni 2016, Hasyim *et al*. 2019, Tirtaningtyas & Yordan 2017, Iqbal *et al*. 2020, Setiawan *et al*. 2020). Many potential sites along the east coast of Sumatra have not been rigorously explored, particularly in Aceh, Riau, Bangka-Belitung, and Lampung province. More extensive, quantified search efforts of coastal seabirds around the mangrove beaches of these areas is required to advance our knowledge of Caspian Tern and other seabirds in Sumatra.

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TABLE 1
Number and distribution records of Caspian Tern in Indonesia and Sumatra, listed by date

No.	Date	No. of Caspian Terns recorded	Sites	Sources
1	14 Oct 1983	2	Cemara beach, Jambi province	van Marle & Voous 1988, Silvius *et al.* 1986
2	27 Oct 1984	1	Cemara beach, Jambi province	van Marle & Voous 1988, Silvius *et al.* 1986
3	28 Oct 1984	3	Cemara beach (near Labuhan Pering), Jambi province	van Marle & Voous 1988, Silvius *et al.* 1986
4	24 Nov 1984	8	Cemara beach (near Tanjung Jabung), Jambi province	van Marle & Voous 1988, Silvius *et al.* 1986
5	Feb–Mar 1985	Present, no count	Kupang bay, East Nusa Tenggara province	Trainor & Hidayat 2014
6	Aug–Oct 1985	Present, no count	Kupang bay, East Nusa Tenggara province	Trainor & Hidayat 2014
7	02 Mar 1988	1 (possibly this species)	Aru island, Maluku, Maluku province	Bishop 2017
8	01 Dec 1988	11	Banyuasin Peninsula, South Sumatra province	Verheugt *et al.* 1993, Holmes 1996
9	01 Aug 1989	2	Banyuasin Peninsula, South Sumatra province	Verheugt *et al.* 1993, Holmes 1996
10	23–30 Dec 1995	6	Percut, North Sumatra province	Crossland *et al.* 2012, van Balen *et al.* 2013
11	15–17 April 2001	Present, no count	Jambat river, Berbak, near Cemara beach, Jambi province	Wetland International Indonesia Programme 2001
12	30 Oct 2002	3	Cemara beach, Jambi province	Hasudungan & Wardoyo 2002
13	31 Aug 2003	2	Dinding river, Banyuasin Peninsula, South Sumatra province	Iqbal 2002
14	28 Apr 2006	1	Banyuasin Peninsula, South Sumatra province	MI pers. obs
15	22 Dec2009	1	Cemara beach, Jambi province	FNT & IF pers. obs
16	17 Jan 2010	1	Cemara beach, Jambi province	Noni & Londo 2010
17	02 Oct 2010	1	Datuk Alam beach, near Percut, North Sumatra province	Andrew Crossland pers. comm.
18	04 Sept 2012	1	Sejara beach, near Percut, North Sumatra province	Andrew Crossland pers. comm.
19	28 Jan 2017	40	Banyuasin Peninsula, South Sumatra province	YRN pers. obs.
20	08 Sept 2017	6	Banyuasin Peninsula, South Sumatra province	MI, DM & HM pers. obs.
21	12 Sept 2017	2	Maros, South Sulawesi province	Upton 2017
22	02 Oct 2017	2	Losari beach, South Sulawesi	Evans *et al.* 2017
23	20 Oct 2017	Present, no count	Makasar old harbour, South Sulawesi province	Buskirik 2017
24	20 Feb2018	6	Banyuasin Peninsula, South Sumatra province	MI, DM & HM pers. obs
25	04 Dec 2018	4	Sanur beach, Bali province	Gardner & Gardner 2017
26	04 Feb 2019	2	Sorong, West Papua province	Grabin & Grabin 2017
27	04 Sept 2019	1	Bipolo, East Nusa Tenggara province	Ovin *et al.* 2019
28	20–30 Nov 2019	15	Cemara beach, Jambi province	IF pers. obs.
29	21 Dec 2019	20	Banyuasin Peninsula, South Sumatra province	MI & DM pers. obs.

Fig. 2. Caspian Terns found in Sumatra, Indonesia. (A) Two terns encountered among shorebirds on 21 December 2019 along the Banyuasin Peninsula, Banyuasin district, South Sumatra province; (B) tern observed in flight on 22 December 2009 at Cemara Beach, Tanjung Jabung Timur district, Jambi province; (C) terns observed on 28 January 2017 along the Banyuasin Peninsula, Banyuasin district, South Sumatra province. Photos taken by Muhammad Iqbal [A], Fransisco Noni Tirtaningtyas [B], and Yus Rusila Noor [C].

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