

## The Caspian Tern *Hydropogne caspia* in Tanzania

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### ABSTRACT

Prior to the late 1980s the Caspian Tern was considered a vagrant to coastal Tanzania. Since the early 1990s numbers wintering along the coast have continued to increase to the extent that there are now approximately 700 birds spending their non-breeding season north of 8 degrees south. Data from regular counts at key sites suggests that four roost sites hold more than 100 birds each. It is suggested that these birds are from the poorly known Malagasy population estimated at 1,000 to 2,000 birds with a 1% level of just 15 (Wetlands International 2012). If this is the case these counts represent either a major shift in the behavior of these birds or an undocumented increase in the size of the population. If the former then Tanzania now seasonally hosts approximately 50% of the population with four sites holding more than 6% and as such they qualify as shadow Ramsar sites.

**Keywords:** Caspian Tern; *Hydropogne caspia*; Hovering bird; Breeding season

### CASPIAN TERN

Caspian Terns usually feed singularly close to shore or over the reef using salt pans for roosting at high tide when they concentrate on the bunds and are more easily counted. Occasionally sea water is pumped into the salt pans at high tide and the terns exploit the small fish that become available. This allows photographic opportunities such as this hovering individual. Note the dark-centered secondaries and dark tail feathers that suggest a first-winter bird, as do the much worn outer primaries. Note the active wing moult with 6 old outer primaries on the left wing contrasting with the paler grey new inner primaries. Egg laying in the Malagasy Region occurs from late May through to August when counts on the Tanzanian coast are at their lowest (Figure 1).

Since at least there has been an increasing non-breeding population of Caspian Terns along the coast of Tanzania which likely now numbers more than 600 birds. But, where might these birds have come from? There are only three possibilities [1].

- Birds from Western Palaearctic breeding grounds that are now wintering further south.
- Birds from an expanding South African breeding population that are now wintering further north or

- Birds from the poorly known breeding population on Madagascar.



**Figure 1:** Bird hovering (Caspian Tern 16 March 2014 Bagamoyo, Tanzania).

Baker [2] speculated that “They are unlikely to be from the southern populations in Madagascar and South Africa but this cannot be ruled out”. This species has, until quite recently, been a rare bird on the coast of Tanzania. Britton and Brown [3] could only refer to Harvey [4] who saw a single bird in Dar es

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Salaam on 17 December 1972 and two birds at Bagamoyo on 5 March 1973.

Britton [5] had nothing to add to these two records and only reported two records for coastal Kenya south of Mida Creek and gives a peak wintering population from Malindi at 25-35 birds in

December-February. Fuggles-Couchman [6] adds two records from near Dar es Salaam in October 1956. The Tanzania Atlas Database currently holds 187 records for this species from 45 observers. Table 1 shows the details of 157 of these records. The other records being duplicates or no count so of lesser value.

**Table 1:** Observations for Tanzania from the Tanzania Bird Atlas Project database.

Locality	Day	Month	Year	Count	Observer	Reference
Dar es Salaam		10	1956	2	N.R. Couchman	Fuggles-Couchman 1984
Dar es Salaam	17	12	1972	1	W. G. Harvey	Harvey 1973
Bagamoyo	5	3	1973	2	W.G. Harvey	Harvey 1973
Dar es Salaam		4	1982	1	N.E. Baker	TBAP database
Dar es Salaam	16	9	1986	2	Z. Batia	TBAP database
Rufiji Delta	23	2	1988	196	T. Bregnballe	Bregnballe et al. 1990
at sea 70 km south of RD		2	1988	7	T. Bregnballe	Bregnballe et al. 1990
RD Simba Urang		2	1993	30	E. Pollard	TBAP database
Rufiji Delta		3	1993		E. Pollard	TBAP database
Dar es Salaam		3	1994	1	N.E. Baker	TBAP database
Dar es Salaam		9	1994	1	T. Lemberg	TBAP database
Tanga		11	1994	1	K. Shurcliffe	TBAP database
Mkwaja		12	1994	1	K. Shurcliffe	TBAP database
Tanga		1	1995	1	K. Shurcliffe	Baker 1997
Kama River mouth		1	1995	10	K. Shurcliffe	Baker 1997
Lake Sagara		1	1995	1	H. Meltoft	Baker 1997
Tanga Kigombe		12	1995		K. Shurcliffe	TBAP database
Rufiji River	18	1	1996	2	N.E. Baker	TBAP database
Kilwa Kivinje		1	1996	1	N.E. Baker	TBAP database
Lake Chidya	13	2	1996	2	N.E. Baker	TBAP database
Ruvuma River	12	2	1996	2	N.E. Baker	TBAP database
Mnazi Bay		10	1996	1	S. Cavers	TBAP database
Mnazi Bay		12	1996	1	S. Cavers	TBAP database
Zanzibar Jambiani	10	4	1997		C. & T. Stuart	Stuart & Stuart 1998
Zanzibar Paje	25	4	1997		C. & T. Stuart	Stuart & Stuart 1998

Ushongo		11	1997		P. Oliver	TBAP database
Bagamoyo		2	1998		F. Reid	TBAP database
Pembe Abwe		1	1999		D. Peterson	TBAP database
Pembe Abwe		2	1999		D. Peterson	TBAP database
Pembe Abwe		12	1999		D. Peterson	TBAP database
Musoma		9	1999		I. Shanni	TBAP database
Pembe Abwe		1	2000		D. Peterson	TBAP database
Rufiji Delta survey	19	12	2000	173	O. Nasirwa	Nasirwa et al. 2001
RD Kiomboni	21	12	2000	38	O. Hamerlynck	TBAP database
Ushongo		1	2001		P. Oliver	TBAP database
Sonneratia	18	6	2001	15	O. Hamerlynck	TBAP database
Pembe Abwe		12	2001		D. Peterson	TBAP database
Saadani NP		12	2001		M. Butterfield	TBAP database
RD Bumba River		11	2002		O. Hamerlynck	TBAP database
Bagamoyo		1	2002		M. Butterfield	TBAP database
Saadani NP	30	12	2002	2	S. Adinall	TBAP database
Somanga	28	1	2003	1	S. Totterman	TBAP database
Zanzibar	1	1	2003		P. Leonard	TBAP database
Saadani NP	4	1	2003	1	S. Adinall	TBAP database
Pembe Abwe	24	12	2003		D. Peterson	TBAP database
Mafia Island	6	2	2003		B. Whitmore	TBAP database
Saadani NP	28	2	2004	1	W. Suter	TBAP database
Bagamoyo		4	2004		F. Reid	TBAP database
Saadani NP		5	2004		F. Reid	TBAP database
Wami River	3	4	2004	1	D. Peterson	TBAP database
Musoma		9	2004	1	I. Shanni	TBAP database
Speke Bay Lodge	10	1	2005	1	M. Vattulainen	TBAP database
Saadani salt works	10	1	2005	100	J. Olssen	TBAP database
Kajanjo village	12	1	2005	1	J. Olssen	TBAP database
Madete	12	1	2005	3	J. Olssen	TBAP database
Wami River	13	1	2005	3	J. Olssen	TBAP database

Wami River delta	13	1	2005	45	J. Olssen	TBAP database
Maziwe Island	16	1	2005	1	J. Olssen	TBAP database
Mwaraongo salt	18	1	2005	2	J. Olssen	TBAP database
Pembe Abwe	5	11	2005	100	D. Peterson	TBAP database
Mafia Island SW	14	1	2005	1	A.E. Christensen	TBAP database
Yambe Island	21	1	2005	1	A.E. Christensen	TBAP database
Ruvu Rver delta	8	1	2005	91	A. Sander	TBAP database
Wami River delta	9	1	2005	8	A. Sander	TBAP database
Bagamoyo salt	12	1	2005	28	T. Johansen	TBAP database
Bagamoyo south coast	18	1	2005	2	J. John	TBAP database
Nsakala Bay	16	1	2005	1	T. Johansen	TBAP database
Somanga Bay	18	1	2005	2	T. Johansen	TBAP database
Somanga north	19	1	2005	2	T. Johansen	TBAP database
Ruvuma estury	16	1	2005	8	A. Garpebring	TBAP database
Jangwani DSM	4	1	2006	1	N.E. Baker	TBAP database
Pembe Abwe	28	1	2006		D. Peterson	TBAP database
Jangwani DSM		2	2006		J. Dixon	TBAP database
Pembe Abwe		2	2006		D. Peterson	TBAP database
Pembe Abwe	26	10	2006		D. Peterson	TBAP database
Pembe Abwe		1	2007		D. Peterson	TBAP database
Ruvu estury		5	2007		F. Reid	TBAP database
Pemba north	30	11	2007	2	N. Borrow	TBAP database
Dambwe island	30	11	2007		H. Zvulun	TBAP database
Pemba north	22	3	2008		H. Zvulun	TBAP database
Bagamoyo		3	2008		M. Eager	TBAP database
Pembe Abwe		1	2009		D. Peterson	TBAP database
Pangani beach		3	2009	1	Thomas	TBAP database
Emayani beach	20	3	2010	1	P. Oliver	TBAP database
Mkwaja		3	2010		J. Whittle	TBAP database
Emayani beach	29	1	2011	1	T. Nyegaard	TBAP database
Pembe Abwe	30	1	2011		D. Peterson	TBAP database

Bagamoyo salt	7	8	2011	7	N.E. Baker	TBAP database
Bagamoyo salt	4	9	2011	1	J. Simms	TBAP database
Bagamoyo salt	18	9	2011	4	N.E. Baker	TBAP database
Mtwara	8	11	2011		J. Simms	TBAP database
Maziwe island		1	2012		D. Peterson	TBAP database
Bagamoyo Livingstone	11	3	2012		N.E. Baker	TBAP database
Bagamoyo salt	11	3	2012	70	N.E. Baker	TBAP database
Bagamoyo Livingstone	27	5	2012	1	N.E. Baker	TBAP database
Bagamoyo salt	27	5	2012	11	N.E. Baker	TBAP database
Fish Eagle Point	14	10	2012		F. Reid	TBAP database
Bagamoyo salt	16	12	2012	62	N.E. Baker	TBAP database
Bagamoyo salt	27	1	2013	113	N.E. Baker	TBAP database
Bagamoyo salt	10	3	2013	6	N.E. Baker	TBAP database
Bagamoyo salt	2	6	2013	2	E.M. Baker	TBAP database
Livingstone Hotel	7	7	2013		N.E. Baker	TBAP database
Bagamoyo salt	4	8	2013	1	N.E. Baker	TBAP database
Bagamoyo salt	6	10	2013	4	N.E. Baker	TBAP database
Saadani Tent View	2	11	2013	8	N.E. Baker	TBAP database
Saadani salt works	3	11	2013	30	N.E. Baker	TBAP database
Bagamoyo salt	15	12	2013	25	J. Jarvis	TBAP database
Pembe Abwe	25	12	2013		D. Peterson	TBAP database
Bagamoyo salt	26	1	2014	3	E.M. Baker	TBAP database
Bagamoyo salt	2	2	2014	137	N.E. Baker	TBAP database
Bagamoyo salt	9	2	2014		R. Marais	TBAP database
Bagamoyo salt	2	3	2014	80	J. Jarvis	TBAP database
Bagamoyo salt	2	3	2014	65	N.E. Baker	TBAP database
Bagamoyo salt	7	3	2014	57	N.E. Baker	TBAP database
Bagamoyo salt	16	3	2014	60	N.E. Baker	TBAP database
Bagamoyo salt	16	3	2014		J. Jarvis	TBAP database
Bagamoyo salt	19	4	2014		N.E. Baker	TBAP database
Bagamoyo salt	20	4	2014	5	N.E. Baker	TBAP database

Bagamoyo salt	15	6	2014	5	N.E. Baker	TBAP database
Saadani Tent View	30	7	2014	7	J. Jarvis	TBAP database
Saadani NP	1	8	2014	3	J. Jarvis	TBAP database
Bagamoyo salt	25	8	2014		N.E. Baker	TBAP database
Bagamoyo salt	28	9	2014	9	N.E. Baker	TBAP database
Bagamoyo salt	12	10	2014	6	N.E. Baker	TBAP database
Bagamoyo salt	23	10	2014	5	N.E. Baker	TBAP database
Bagamoyo salt	24	10	2014	9	N.E. Baker	TBAP database
Bagamoyo salt	10	11	2014	18	N.E. Baker	TBAP database
Bagamoyo salt	8	12	2014	71	N.E. Baker	TBAP database
Bagamoyo salt	2	1	2015	49	N.E. Baker	TBAP database
Bagamoyo salt	17	1	2015	48	N.E. Baker	TBAP database
Bagamoyo salt	18	1	2015		N.E. Baker	TBAP database
Bagamoyo salt	27	1	2015		N.E. Baker	TBAP database
Bagamoyo salt	22	2	2015	54	N.E. Baker	TBAP database
Bagamoyo salt	27	2	2015	12	N.E. Baker	TBAP database
Bagamoyo salt	2	4	2015	2	N.E. Baker	TBAP database
Bagamoyo salt	6	4	2015	35	N.E. Baker	TBAP database
Bagamoyo salt	11	4	2015	1	N.E. Baker	TBAP database
Mchinga Bay	10	5	2015		M. Simmonds	TBAP database
Bagamoyo salt	24	5	2015	15	N.E. Baker	TBAP database
Bagamoyo salt	5	7	2015	8	N.E. Baker	TBAP database
Bagamoyo salt	11	7	2015	2	N.E. Baker	TBAP database
Bagamoyo salt	6	9	2015	9	N.E. Baker	TBAP database
Fish Eagle Point	31	10	2015	2	O. Hamerlynck	TBAP database
Bagamoyo salt	29	11	2015	65	N.E. Baker	TBAP database
Bagamoyo salt	10	1	2016		F. Vetter	TBAP database
Bagamoyo salt	17	1	2016	154	F. Vetter	TBAP database
Bagamoyo salt	18	1	2016	105	F. Vetter	TBAP database
Ushongo		1	2016		J. Whittle	TBAP database
Pembe Abwe	2	2	2016		D. Peterson	TBAP database

Bagamoyo salt	7	2	2016		N.E. Baker	TBAP database
Livingstone Hotel	7	2	2016		N.E. Baker	TBAP database
Zanzibar Marumbi	11	4	2016	1	M. Blok	TBAP database
Bagamoyo salt	6	11	2016	20	N.E. Baker	TBAP database
Lake Manzi	9	12	2016	2	R. Marais	TBAP database
Dar es Salaam	12	12	2017		F. Vetter	TBAP database
Ruvu rice	20	7	2018		R. Marais	TBAP database
Nyumba ya Mungu	21	1	2018	1	N.E. Baker	TBAP database

Breeding season records for Madagascar include Nosy Mborono (SW) June-August, Aldabra April-August, Nosy Tsara (N) from March, Nosy Foty (NW) May or June. Madagascar population

estimates are given as 1,000 – 2,000 and 960 – 1,900 and the highest non-breeding count is of 200 birds [7]. Table 2 gives the number of records in each month with month maximums.

**Table 2:** Number of observations and highest counts for each month for Tanzania from the TBAP database.

Months	Number of Observations	Highest Count	Next high	Next high	Next high
1	53	154	113	105	100
2	17	137	54	12	
3	17	80	70	65	60
4	11	35			
5	6	15	11		
6	8	15	13		
7	5	8	7		
8	4	7	3		
9	9	9	9	4	
10	10	9	6	5	
11	12	65	30	18	
12	30	105	71	62	38

The breeding season fits well when birds are scarce in Tanzania. Stafford and Hawkins [7] give age at first breeding at 3 years or more which could account for low numbers off the Tanzania coast during the Malagasy breeding season.

Table 3 gives extra records taken from ebird. While this data adds to the general impression of a widespread species only the targeted survey of the Rufiji Delta in January 2017 includes significant numbers.

**Table 3:** ebird records for Tanzania.

Locality	Day	Month	Year	Count	Observer
Ruvuma River	1	1	2015	1	B. A. Jummaa

Fish Eagle Point	4	1	2019	5	W. van Zwetselaar
Zanzibar Channel	5	1	2018	1	L. Hintz
Zanzibar Channel	6	1	2019	2	G. Schechter
Zanzibar Channel	9	1	2000		B. Korol
Rufiji Delta	26	1	2017	40	S. Nagy
Rufiji Delta	27	1	2017	76	S. Nagy
White Sands Hotel	28	1	2016	5	G. Artioli
Sigi River Amboni	1	2	2005	1	J. Smith
Mafia Island	16	2	2013	4	M. Erdosy
Bagamoyo salt	10	3	2013	5	M. Erdosy
Zanzibar town	19	3	2008		D. Hoops
Pangani beach	24	3	2016	2	P. Davidson
Fish Eagle Point	27	3	2016	7	A. Grau
Zanzibar Channel	30	3	2018	2	D. Hjertaas
Zanzibar Island Beach Resort	10	4	2013	1	D. Pontalti
Beachcomber Hotel DSM	8	5	2016		J. Goldberg
Mbudya Island DSM	14	5	2016	4	J. Goldberg
Kipepeo DSM	2	6	2007	3	J. Stahl
Selous GR	6	6	2014	1	A. Hopkins
Zanzibar Breezes Hotel	30	6	2019		L. Corneliusen
Pangani beach	28	7	2016	2	W. van Zwetselaar
Slipway DSM	28	7	2010	1	S. Clark
Pemba Mantra Reef Hotel	14	10	1998		P. Kaestner
Zanzibar NE	24	10	2017		S. Knights
Fish Eagle Point	2	11	2001	1	R. Ridout
Lake Burunge	8	11	2014	1	R. Ridout
Zanzibar town	24	11	2012		K. Burton
Simply Saadani	29	11	2017	14	S. Thompson
Barry's Beach	23	12	2006	6	A. Grau
Saadani NP	24	12	2016	3	A. Grau
Ushongo	28	12	2006	1	K. Schwartz



Ushongo	29	12	2018	4	P. Davidson
Maziwe Island	30	12	2016	8	D. Gabriel

Note the lack of even casual records for August and September. Table 4 gives ebird records for Kenya. This maximum count of 30 birds suggests no changes in this wintering population since the 1970s. These Kenyan records do not suggest the 600 or so

birds wintering on the Tanzania coast originate from the Western Palearctic. Table 5 gives ebird records for Mozambique.

**Table 4:** ebird records for Kenya.

Locality	Day	Month	Year	Count	Observer
Nyali Beach	19	1	1993	1	Kate Flemming
Mida Creek	20	1	2005	8	Jan Smith
Sabaki Estuary	22	1	2019	30	Kristina Wolf
Sabaki Estuary	29	1	2005	20	Jan Smith
Kizingitimi	13	1	1980	17	Hector de Silva
Vasco da Gama	26	2	1988	2	Johan Nilsson
Sabaki Estuary	29	2	2009	25	Johan Nilsson
Tana Delta	4	2	2017	30	Doris Schaule
Diani Ukundu	26	3	2005	1	Stephen Carter
Sabaki Estuary	2	4	2017	30	James Weis
Tana Delta	9	4	2019	30	Mustafa Adamjee
Manda	2	7	2017	4	Tyler Davis
Mida Creek	13	8	1989	3	David Holyoak
Watamu	17	10	1992	2	Frank Hawkins
Sabaki Estuary	21	10	2010	10	Antero Topp
Bamburi	27	11	2016	2	Antero Topp
Sabaki Estuary	12	11	2017	5	Doris Schaule
Sabaki Estuary	22	11	2016	6	Elizabeth Johnson
Sabaki Estuary	18	11	2005	28	Frank Brown
Malindi	28	12	2017	5	James Dee
Vasco da Gama	6	12	2001	8	John Sterling
Sabaki Estuary	19	12	1986	30	Steve Rose

**Table 5:** ebird records for Mozambique.

Locality	Day	Month	Year	Count	Observer	Comments
Quiterajo	23	2	2014	1	W. McClelland	
Maputo	14	4	2013	40	G. Allport	Many records of less than 10 birds for Maputo area.
Maputo	6	5	2014	35	G. Allport	
Quirimbas	26	7	2014		L. Hoschke	
Pemba	31	10	2018	5	D. Coleman	

These few records do not suggest that the 600 birds wintering in Tanzania originate from the South Africa breeding population. We do not know the origins of these birds. It was earlier assumed they are from the Western Palaearctic (rather than South Africa) but the nearest large breeding populations are in the Black Sea with a 1% threshold of only 40 birds and the Caspian Sea with a 1% threshold of 120 birds [8]. There has been a small increase in sightings in Somalia with only 4 records prior to 1978 and 47 between then and the late 1990s [9]. Birds are present in low numbers throughout the year in Ethiopia and Eritrea [10] and there is a small breeding population on the coast of Eritrea with 103 pairs present on 45 islands in the northern winter [11]. Nikolaus [12] mentions “up to 300 on autumn passage” for the Sudan and that Swedish and Russian ringed birds have been recovered at Jebel Aulia and Sennar dams.

However, the lack of records from the well watched Kenya coast (Table 4) where no large flocks are known suggest that those now spending their non-breeding season on the Tanzania coast are not from the Western Palaearctic. Note that the current maximum flock size for the Kenya coast is, at 30 birds, the same as it was in the 1970s.

Ebird (accessed 30 September 2018) hosts 13 records for Tanzania that are not (yet) in the Atlas database (Table 3). During a waterbird survey of the Rufiji Delta in January 2017 counts of 76 and 46 have been submitted to ebird but not yet published (SN). Only one other count is of more than 10 birds, 14 off Mkwaja on 24 November 2017 (ST).

Clearly the coast of Tanzania is now hosting close to 200 birds in the Rufiji Delta, 160 in the vicinity of Bagamoyo and at least 100 in the vicinity of Saadani NP and 100 close to Pangani (Pembe Abwe). Given that there are smaller numbers at many other sites a non-breeding population close to 700 birds is likely [2]. The Rufiji Delta (with Mafia Island) is already a designated Ramsar site. The data presented here suggests that the salt pans in the valley of the lower Ruvu River flood plain qualify as a shadow Ramsar site for this species and so may those in Saadani NP when more effort has been made to count them on a regular basis. It should be remembered that high counts are only likely at roost sites during periods of high tide which helps explain lower counts during the months of peak abundance.

Safford and Hawkins [7] consider it a resident breeder on Madagascar, the Aldabra archipelago and on Europa. Ebird data

for Madagascar lists 41 localities with only 3 serious counts of 10, 16 and 25 birds.

Peak counts for the Tanzania coast (Table 2) are from November through March. This suggests that many Malagasy birds could now be spending their non-breeding season on the coast of Tanzania. If this is correct then any count of 15 birds can be considered as meeting the Ramsar 1% criteria with at least 2 sites holding more than 10% of the population. Figure 2 details geo-referenced observation and the 4 main roost sites. A question for ornithologists and conservationists in Madagascar is WHY have these birds changed their non-breeding sites? The African Eurasian Waterbird Agreement (AEWA) does not consider any African populations as migratory. This may now have to change and I would suggest a tighter population estimate is required for the Malagasy population. It may well be that more than 50% are now wintering on the coast of Tanzania.

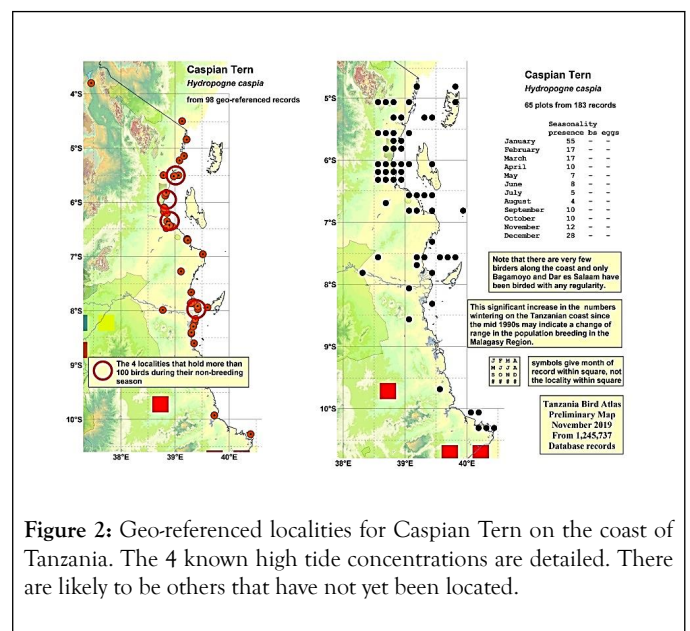


Figure 2: Geo-referenced localities for Caspian Tern on the coast of Tanzania. The 4 known high tide concentrations are detailed. There are likely to be others that have not yet been located.

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