China Spoon-billed Sandpiper Census 2020

Spoon-billed Sandpiper Conservation Alliance

March 2020

CONTESTS

Abstract

China Spoon-billed Sandpiper (*Calidris pygmaea*, SBS) Winter Census 2020 was conducted from Jan 17th 2020 to Jan 19th 2020, aiming at better understand SBS population and overwintering habitat locations. A total of 33 sites were surveyed including Zhejiang, Fujian, Guangdong, Guangxi and Hainan, basically covering all known SBS overwintering (stopover) sites in China. This census was jointly completed by 27 SBS Conservation Alliance members with over one hundred people. We recorded 49 SBS individuals in all with 13 individually-marked individuals (12 with engraved flag and one with metal ring). Fucheng, Leizhou Peninsula, the location with the largest SBS winter population in China, recorded 28 individuals, taking up 57.14% of the total count of this census. We recorded 10 SBSs at three new sites, accounting for 20.40% of the total count of this census. Hunting and capture fishery were considered as the most common threats in our evaluation. We recorded threatened species including SBS at 23 survey sites. A total of eight threatened species was observed. As a key component of the global SBS winter census, this census deepened our knowledge of SBS population and overwintering habitat locations in China. It also promoted collaboration among alliance members, increased alliance's general ability to species monitoring and boosted public awareness of critically endanger species SBS and conservation actions.

1 Introduction

Spoon-billed sandpiper (*Calidris pygmaea*, SBS) is a small long-distance migratory shorebird, named after its unique spatulate bill. SBS breeds in specialized tundra habitat with adjoined estuary or lagoon sparse vegetation. Its population was first estimated at 2000-2800 pairs and it was later listed as threatened species (BirdLife International, 2018). Tomkovich *et al.* (2002) first alerted a dramatic decline of SBS population based on breeding habitat survey from Anadyr and southern coastal region (Flint and Kondratyev, 1977). Subsequently, census in overwintering habitat in Mynamar

confirmed the sharp decline (Syroechkovskiy, 2004; Zockler *et al.*, 2005; Zöckler *et al.*, 2010). IUCN Red List uplisted SBS conservation status as Endanger in 2004 and listed SBS as critically endangered species in 2008. SBS population declined with an annual rate of approximate 26% (Zöckler, Syroechkovskiy and Atkinson, 2010; Pain, Green and Clark, 2011). Up to date, SBS global population is estimated as 210-228 pairs, equivalent to about 360-684 individuals (Zöckler *et al.*, 2016; BirdLife International, 2018; Clark *et al.*, 2018).

As a represent of long-distance migrant on the East Asian-Australasian Flyway (EAAF), SBS mainly breeds in costal tundra in Chukotskly, Northeastern Russia. It migrates over Hebei, Shandong, Jiangsu, Shanghai, Zhejiang and Fujian in China and spends its winter in Guangdong, Guangxi and Hainan of China or other countries including Bangladesh, Myanmar and Thailand (Van Gils *et al.*, 2020). Thus, conservation measures need to be taken along the entire flyway, which requires tight international collaboration among governments, non-governmental organizations and institutions. Zockler and Bunting (2006) first proposed a Species Action Plan as an important basis for SBS international practical conservation measure, and updated it in 2008 and 2010 (Zöckler, Syroechkovski and Bunting, 2008, 2010). An agreement was reached at the 5th meeting of East Asian-Australasian Flyway Partnership to set up SBS Task Force to implement the action plan (The East Asian-Australasian Flyway Partnership, 2018). In academic field, researchers from Russia and UK together conducted conservation breeding (i.e. captive rearing) and artificial incubation (called Headstarting program), aiming at increasing the birth rate of SBS and therefore the total population. In 2019, a total of 186 artificially incubated individuals have been released and a couple in cage successfully hatched three eggs and two chicks eventually fledged (Wildfowl & Wetland Trust, 2019).

Regarding countries along EAAF, a considerable number of habitats were protected as nature reserve along the flyway (BirdLife International, 2018). Notably, China's

Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf was inscribed on World Heritage List as a natural site, covering one the most important stopovers for SBS in Yancheng, Jiangsu (World Heritage Committee, 2019). In Upper Gulf of Mottama in Myanmar, the key overwintering habitat for SBS, hunting has remarkable reduced with effort from Russian researchers and local conservation organization. In the last overwintering habitat census, the local population of water birds has increased three times compared to the number after conservation interference started (Htin Hla and Eberhardt, 2011; Clark, Pain and Green, 2014; Aung *et al.*, 2020). Yet, the total SBS count has decline to about 112 individuals, only half of the estimated population in 2009, suggesting threats like hunting and habitat degradation along the flyway (Aung *et al.*, 2020).

Three of nine major flyways pass through China. Thus, China hosts many important stopover sites on the flyway for migratory birds. An 18-thousand-kilometer long coastline and its surrounding intertidal zones provide abundant food sources and roosting space for migrants along EAAF. Regular census help improve knowledge of SBS population and habitat quality. To improve collaboration and boost cooperation for SBS conservation in China, SBS Conservation Alliance was established. A bunch of nature reserve offices, institutions and birding societies joined in the alliance and contributed great effort to save the species. In the winter between 2018 and 2019, SBS Conservation Alliance coordinated SBS winter census for the first time, covering almost all recorded SBS overwintering sites in southeast China. To better understand , SBS population and overwintering habitat locations in China, we coordinated China SBS Winter Census 2020 from Jan 17th 2020 to Jan 19th 2020, adding 13 new sites such as Wenzhou Bay, Hangzhou Bay, Shantou, Maoming. Here, we presented the results of China SBS Winter Census 2020.

2 Methods

Global SBS Winter Census was carried out from Jan 15th to Jan 30th 2020. China SBS Winter Census 2020 was conducted from Jan 17th 2020 to Jan 19th 2020 at 33 sites in Zhejiang, Fujian, Guangdong, Guangxi and Hainan (Figure 1). The survey region covered over 2100 kilometres of coastline in SE China. In all, 27 members of SBS Conservation Alliance with over one hundred people involved in this census. Constrained by local tide and labor constraint, census in Fuzhou, Fujian was conducted in Jan 12th. Considering SBS's limited dynamics in winter, we still included counts in Fuzhou in this report.

A line transect method was applied at each survey site. We used vehicles or simply walked during the census, depending on local transportation. Binocular and scope were used to search and identify birds. We recorded species name and individual count once the subject was identified. Counting was conducted once or several times at each site based on local tide. SBS individuals were directly count with an accuracy to digits. For other species, we adopted direct count method when individuals were solitary, while we estimated count number by groups when individuals gathered as flocks. Each flock was counted at least twice and an average value was taken as the final count. Once an individual engraved flag was found, we tried to obtain images of it. At each survey site, we recorded the start time, end time, tide height, length of intertidal zone, shore and survey type (i.e. rising, falling, high tide, low tide). Habitat types were classified as mudflats, aquaculture, mangroves, beach, saltpans and estuary. If a survey site consisted of multiple habitat types, we defined it as complex. We identified potential threats (including hunting, capture fishery, aquaculture, invasive species, construction,

pollution and other human activities) at 22 survey sites and we counted frequency of each threat.

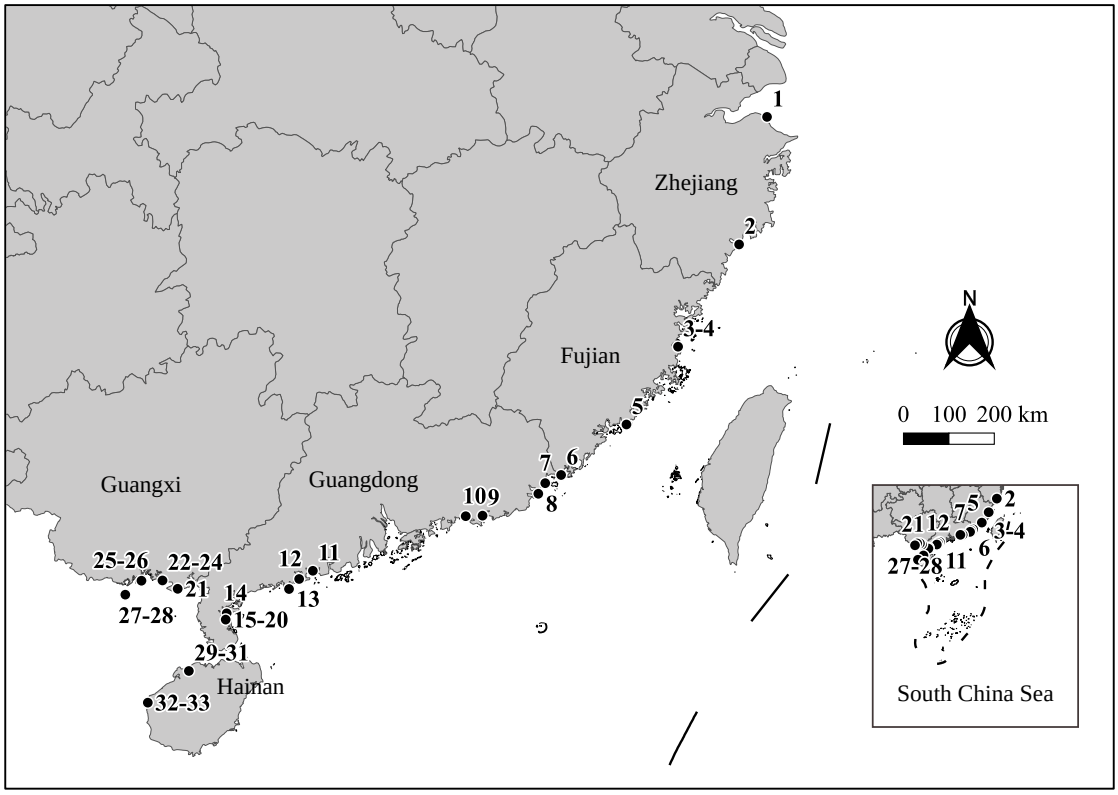

Figure 1 Survey sites of China SBS Census 2020.

(1) Hangzhou Bay, Hangzhou, Zhejiang; (2) Wenzhou Bay, Wenzhou, Zhejiang; (3) Shanyutan, Minjiang estuary, Fuzhou, Fujian; (4) Meihuatan, Fuzhou, Fujian; (5) Weitou, Jinjiang, Fujian; (6) Gongkou port, Zhao'an, Zhangzhou, Fujian; (7) Hanjiang esuary, Shantou, Guangdong; (8) Haojiang esuary, Shantou, Guangdong; (9) Dahu, Haifeng, Guangdong; (10) Changshawan, Haifeng, Guangdong; (11) Moyangjiang estuary, Yangjiang, Guangdong; (12) Xitou, Yangjiang, Guangdong; (13) Pinggang, Yangjiang, Guangdong; (14) Donghai Island, Zhanjiang, Guangdong; (15) Beijia, Leizhou, Guangdong; (16) Hebei (north), Leizhou, Guangdong; (17) Hebei (south)-Tujiao (north), Leizhou, Guangdong; (18) Tujiao (north), Leizhou, Guangdong; (19) Tujiao (south), Leizhou, Guangdong; (20) Leigao, Leizhou, Guangdong; (21) Zhulin saltpans, Beihai, Guangxi; (22) Xichang, Beihai, Guangxi; (23) Daguansha, Beihai, Guangxi; (24) Xiniujiao, Qinzhou, Guangxi; (25) Shaluoliao, Fangchenggang, Guangxi; (26) Shanxinsha Island, Fangchenggang, Guangxi; (27) Bailangtan, Fangchenggang, Guangxi; (28) Jintan, Fangchenggang, Guangxi; (29) Dongchang, Danzhou, Hainan; (30) Guangcun, Danzhou, Hainan; (31) Xinying saltpans, Danzhou, Hainan; (32) Changhuajiang estuary, Dongfang, Hainan; (33) Mianqianhai saltpans, Dongfang, Hainan.

We used Microsoft Excel 365 for data cleaning and analysis. For threat evaluation, we calculated an average score for each threat type at every survey site. A sum of all threat scores at each survey site was finally computed and used for ranking. Based on the method used in China Coastal Waterbird Census, we classified species into groups

including cormorants, herons, egrets, storks, ducks, jacanas, gulls, shorebirds and some wetland-dependent species (China Coastal Waterbird Census Group, 2011).

3 Result

3.1 SBS winter population and location

We recorded a total number of 49 SBSs at 13 sites in China SBS Winter Census 2020. There was a 68.97% increase (i.e. 20 individuals) of total count compared to census in 2019. Among 13 new sites, three sites recorded 10 SBSs in all, taking up 20.40% of the total count in 2020 (Table 1). Fucheng of Leizhou peninsula remained the location with the largest SBS population in China, with a record of 28 individuals (taking up 57.14% of the total count, Table 2). After redivision of survey sites at Fucheng, Leizhou peninsula, there was a dramatic increase compared to last year's count. At Tujiao north, we counted 18 SBS individuals, the maximum count among all sites in this census (Table 2). This flock later moved south and 11individuals recorded at Tujiao south was not included (Table 2). SBS was only absent at Leigao at Leizhou peninsula (Table 2). Moreover, there were small numbers of SBSs at sites including Fangchenggang (three at Bailangtan, three at Shanxinsha Island and another four at Shaluoliao) and Yangjiang (three at Xitou and five in Pinggang, Table 1). We recorded one SBS individual at Daguansha, Zhulin saltpans and Xinying saltpans (Table 1). There was no SBS at Shanyutan and Gongkou port where we recorded one individual in last year's census (recorded two and one, respectively, Table 1).

We sighted 12 SBS individuals engraved flag and all flags were identified listed in Table 3 (figures for each individual could be found in supplementary). Individual with yellow plastic flag marked "TU" ringed in Rudong, Jiangsu in 2018 was also recorded at Leizhou peninsula during last year's census. Moreover, an SBS individual with metal ring was identified via photo but we failed to read the ring number (Table 2).

Table 1 SBS count at all sites in China SBS Winter Census 2020, with a comparison of count in census 2019 (blue bar: decrease; orange: increase).

Province	Location	Habitat	Count in 2020	Count in 2019	Count Difference
Zhejiang	Hangzhou Bay, Hangzhou	mudflats	0	-	
	Wenzhou Bay,Wenzhou	mudflats	0	-	
Fujian	Shanyutan, Minjiang estuary, Fuzhou[1]	mudflats	0	2	
	Meihuatan, Fuzhou[1]	mudflats	0	0	
	Weitou, Jinjiang	-	0	-	
	Gongkou port, Zhao'an, Zhangzhou	-	0	1	
Guangdong	Xitou, Yangjiang	mudflats	3	4	
	Pinggang, Yangjiang	mudflats	5	-	
	Moyangjiang estuary, Yangjiang	mudflats	0	-	
	Donghai Island, Zhanjiang	mudflats	0	0	
	Fucheng, Leizhou peninsula[1]	mudflats	28	13	
	Hanjiang esuary, Shantou	mudflats	0	-	
	Haojiang esuary, Shantou	saltpans	0	-	
	Changshawan, Haifeng	mudflats	0	-	
	Dahu, Haifeng	mudflats	0	-	
Guangxi	Xiniujiao, Qinzhou	mudflats/ ponds	1	2	
	Xichang, Beihai	mudflats	0	0	
	Daguansha, Beihai	-	1	1	
	Zhulin salina, Beihai	-	0	-	
	Bailangtan, Fangchenggang	-	3	3	
	Sanxinsha Island, Fangchenggang	-	3	3	
	Shaluoliao, Fangchenggang	-	4	-	
	Jintan, Fangchenggang	-	0	0	
Hainan	Dongchang, Danzhou	-	0	0	
	Guangcun, Danzhou	-	0	-	
	Xinying salina, Danzhou	-	1	-	
	Changhuajiang estuary, Dongfang	-	0	0	
	Mianqianhai salina, Dongfang	-	0	0	

[1] Sites that were surveyed outside the global census weeks.

[2] We combined six survey sites at Leizhou peninsula together to compare SBS count between 2019 and 2020, since the division of survey sites were slightly different.

Table 2 Details for SBS count at Fucheng, Leizhou peninsula, Guangdong in China SBS Winter Census 2020.

Location	Habitat	SBS Count
Beijia, Leizhou	mudflats	3
Hebei north, Leizhou	mudflats	3
Hebei south -Tujiao north, Leizhou	mudflats	4
Tujiao north, Leizhou	mudflats	18
Tujiao south, Leizhou	mudflats	11[1]
Leigao, Leizhou	mudflats/aquaculture	0

[1] The same flock as listed above in Tujiao (north), Leizhou.

Table 3 SBS individuals engraved flag or metal rings during China SBS Winter Census 2020, with date, resight location, flag information and individual behaviour. (LU: left upper; RU: right upper).

Date	**Resight Location**	**Habitat**	**Flag Location**	**Engraved Flag**	**Flag Color**	**Behavior**
2020/1/17	Bailangtan, Fangchenggang	Beach	RU	8∨	Lime	Rest, sometimes foraging
2020/1/19	Tujiao, Leizhou	Mudflats	LU	TU	Yellow	Foraging
2020/1/19	Tujiao, Leizhou	Mudflats	LU	53	Yellow	Foraging
2020/1/19	Tujiao, Leizhou	Mudflats	LU	0X	Yellow	Foraging
2020/1/19	Tujiao, Leizhou	Mudflats	LU	4U	White	Foraging
2020/1/19	Tujiao, Leizhou	Mudflats	RU	5X	White	Foraging
2020/1/19	Tujiao, Leizhou	Mudflats	RU	6A	White	Foraging
2020/1/19	Tujiao, Leizhou	Mudflats	RU	2L	White	Foraging
2020/1/18	Hebei, Leizhou	Mudflats	LU	90	Lime	Foraging
2020/1/19	Tujiao, Leizhou	Mudflats	LU	87	Lime	Foraging
2020/1/19	Tujiao, Leizhou	Mudflats	RU	M4	Lime	Foraging
2020/1/18	Hebei, Leizhou	Mudflats	RU	L5	Lime	Foraging
2020/1/19	Hebei, Leizhou	Mudflats	LU	Only witnessed a metal ring		Foraging

3.2 Habitat type and threat evaluation

We received habitat data from 22 survey sites. Almost all survey sites were mudflats except Changhua estuary (estuary), Mianqian saltpans (saltpans) and Dongchang (aquaculture) (Figure 2). All six sites in complex group contained mudflats and four of them included mangroves.

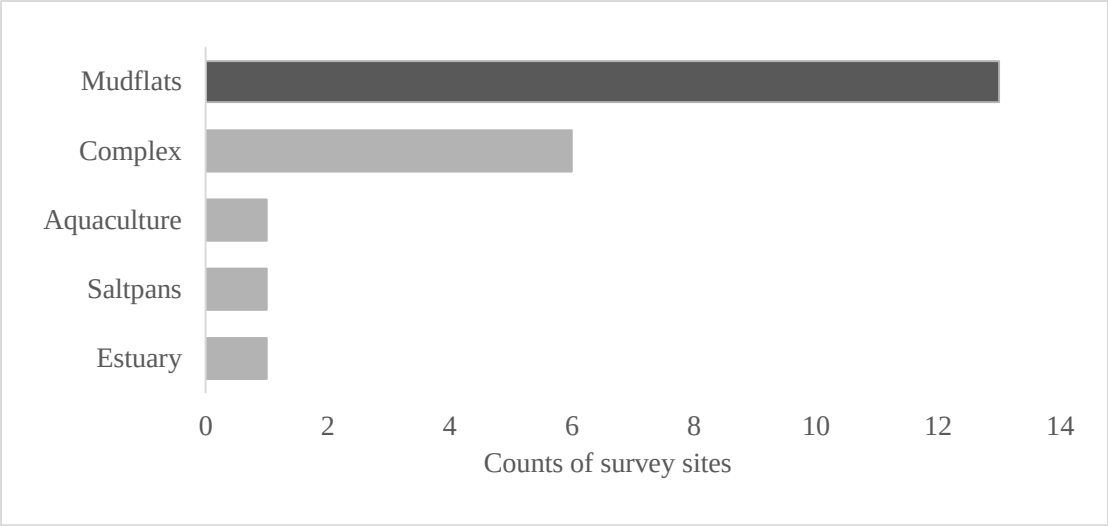

Figure 2 Habitat types among different survey sites during China SBS Winter Census 2020.

We assessed potential threats at 22 survey sites. All sites recorded at least one threat. Hunting and capture fishery were considered as the most frequently- recorded threat (10 times, respectively). Aquaculture and invasive species were relatively common threats among surveyed sites (seven times, respectively). Construction, pollution and other human activities were reported at few sites.

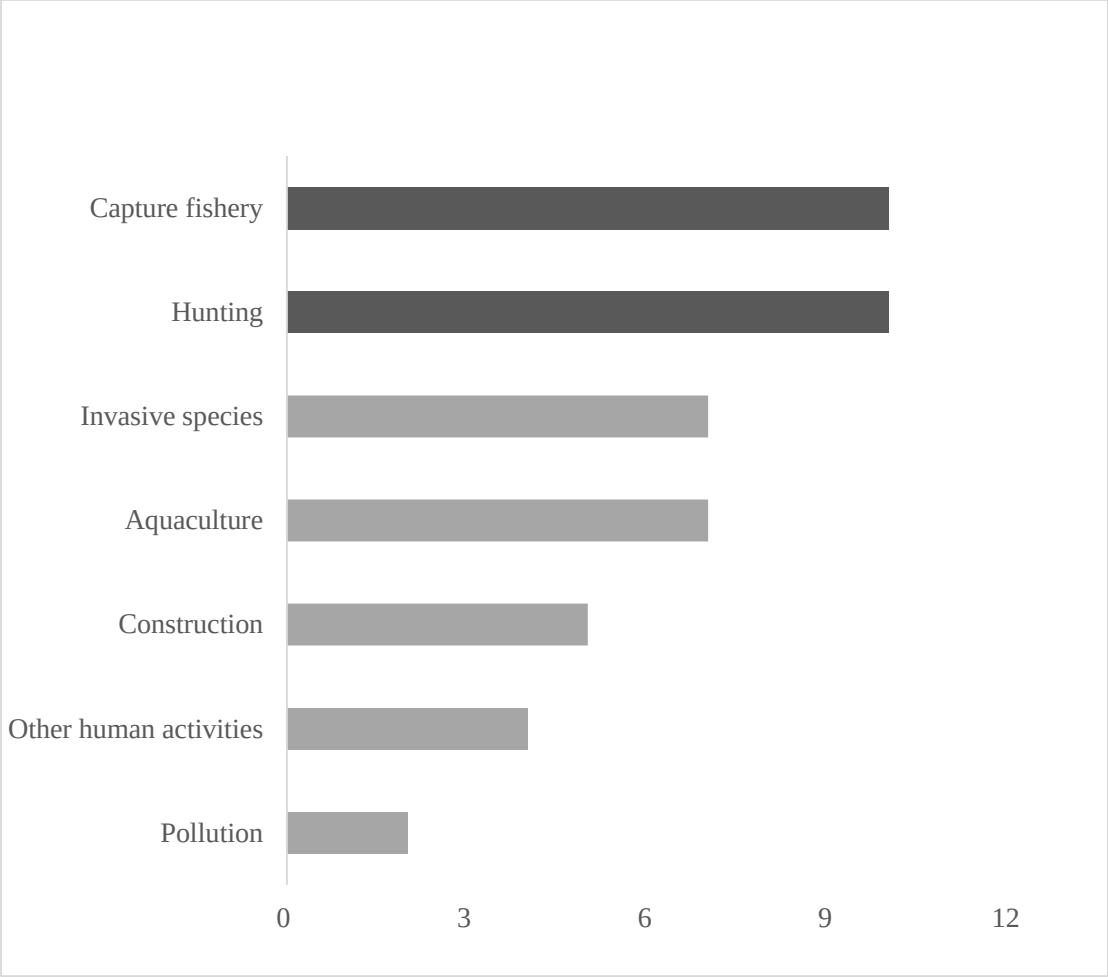

Figure 3 Counts of each threat at 22 survey sites during China SBS Winter Census 2020

3.3 Counts of other water birds

We identified another 88 species in addition to SBS during this census. Shorebirds was the predominant category, taking up 38.46% of the total species (34 species in addition to SBS, Figure 2). A variety of ducks and gulls were recorded (15 species and 15 species, respectively). We only recorded a few species in other categories. For example, we recorded one species in both category of stocks and category of cormorants (Figure 2).

The survey area covered in this census was refuge for other threatened species. A total of 23 survey sites provided refuge threatened species including SBS. We recorded seven threatened species in addition to SBS in all (two VU species and five EN species,

Table 3). Remarkably, we counted 1368 individuals of Saunder's Gull in total during the census.

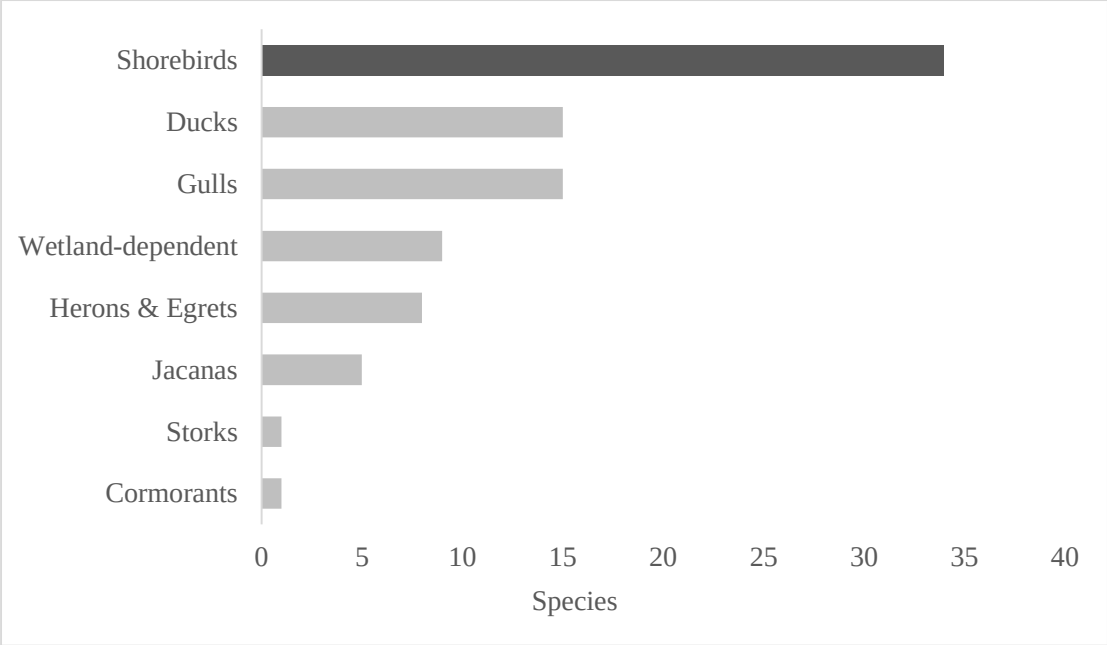

Figure 4 Species count in different categories during China SBS Winter Census 2020 (except SBS).

Table 4 Threatened species and counts recorded in China SBS Winter Census 2020 (except SBS).

Category	Common name	IUCN Red List	Count in census 2020	Global Population
Storks	Oriental Stork	EN	1	1000-2499
Herons & Egrets	Black-faced Spoonbill	EN	114	2250
Gulls	Saunders's Gull	VU	1368	14400
Gulls	Relict Gull	VU	11	10000-19999
Shorebirds	Great Knot	EN	585	292000-295000
Shorebirds	Eastern Curlew	EN	1	20000-49999
Shorebirds	Nordmann's Greenshank	EN	4	1000-2000

3.4 Members in this census

More members of SBS Conservation Alliance joined in China SBS Winter Census 2020. The total number of members increased to 27, ascribed to more involvement of local bird watching societies. A total of 14 bird watching societies participated in the census, making it twice as many as those of 2019. Support from foundation remained the same

while only small change occurring in the number of institutions, nature reserve offices and wetland park (Figure 3).

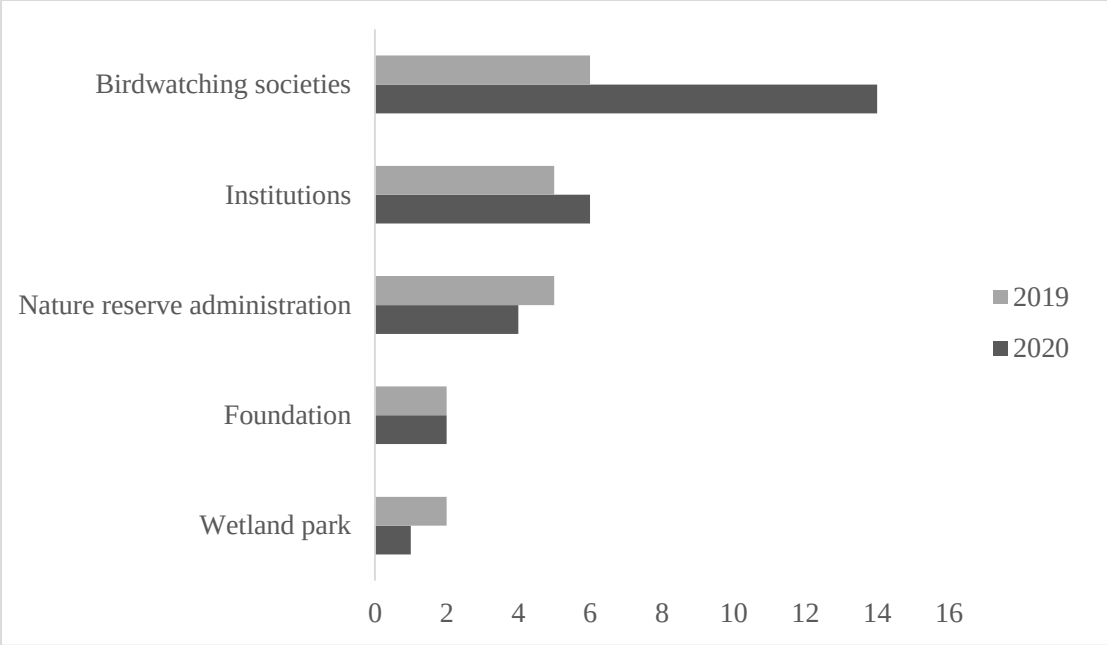

Figure 5 Members of SBS Conservation Alliance involved in China SBS Winter Census 2020 and 2019.

4 Discussion

Due to habitat change and new SBS overwintering record in Wenzhou Bay, we did not conduct census at Xinghua Bay, Fuqingtan, Xiamen, Quanzhou and Haikou, but added 13 new survey sites instead. The increase of total count probably due to the increase of survey sites and habitat management. An expansion of survey area is beneficial for estimation SBS population and discovery new overwintering habitats. A new overwintering site (Xinying saltpans in Danzhou) was accidently found with one SBS individual in Danzhou, Hainan, leading to the southernmost record in census 2020.

There were declines of SBS counts at four survey sites. At Gongkou port, Zhao'an, we did not record any SBS during this year's census though one week before the census, an SBS was reported foraging around (last seen on January 10th 2020). Multiple reasons could lead to count fluctuations. Yet, further research is required to ascertain reasons

for count change. Management should be undertaken as soon as possible in historical record sites to avoid reduction of SBS available habitats.

Based on incomplete data, we considered hunting and capture fishery as the most common threats among 22 surveyed sites. Several survey sites reported birds killed by nets and therefore stop illegal hunting is an urgent need. We only received limited samples during this census and the subjective evaluation of data contributors have great impacts on the results. Moreover, we did not consider the variation of impacts imposed by different threats and the interactions between threats. Thus, we need to further explore potential threats on SBS overwintering habitats in China.

China SBS Winter Census 2020 gained more support from alliance members. Yet, problems emerged because of inexperienced in coordinating a large group of people. More communication and collaboration are required to promote profession efficiency in later SBS census. Regular training and meetings can be carried out in the upcoming future to improve cooperation among members and attract more new members. Besides, a framework needs to be constructed soon for regular monitoring with a standardized methodology in a large scale.

5 Conclusion

Overall, a total of 49 SBS individuals were recorded in China SBS Winter Census 2020, covering coastal lines ranging from Hangzhou Bay to Beibu Gulf. Twelve SBSs were individually-marked with engraved flag and one individual with metal ring. Fucheng, Leizhou Peninsula remained as the location with the largest SBS winter population in China. The total count at three new survey sites took up 20.40% of the entire count in this census. Potential threat evaluation among 22 survey sites demonstrated all assessed sites reported at least one potential threat and hunting and capture fishery were the most common threats. Conservation actions should be quickly implemented at threatened habitats, especially habitats shelter multiple threatened species. Owing to contribution

from 27 alliance members with over one hundred data contributors, we improved our understanding of SBS winter population and their overwintering habitats in China. Effort should be made together in the future to conduct effective conservation plan in China through close cooperation among alliance members.

Acknowledgement

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SUPPLEMENTARY

Figure S1 Individuals engraved flags identified in China SBS Winter Census 2020 (individual engraved flag white 5X and individual engraved flag white 6A were not included due to constraints of photography).

(1) Yellow TU©Yi

(2) Yellow 53©Yi

(3) Yellow 0X©Booby

(4) White 4U©Yi

(7) White 2L© Yi

(8) Lime 90©Chong Zheng

(9) Lime 87©Yi

(10) Lime M4©Yi

(11) Lime L5©Zhen Chong

(12) Lime 8 V ©Liu Dongbo

Table S1 List of all data contributors in China SBS Winter Census 2020.

Province	Location	Researchers
Zhejiang	Hangzhou Bay	Research Institute of Subtropical Forestry, Chinese Academy of Forestry
	Wenzhou Bay	Xiaoning Wang
Fujian	Shanyutan, Minjiang estuary, Fuzhou	Sheng Lin, Wei Fu, Lianqini Huang, Yan Xue
	Meihuatan, Fuzhou	Yifeng Wu, Hongfan Chen
	Weitou, Jinjiang	Hangdong Jiang, Jingxia Sun, Yi Zhao, Yan You, Mouxin Ye
	Gongkou port, Zhao'an, Zhangzhou	GuoTai Dong, Haiying Yang
Guangdong	Xitou, Yangjiang	Peitao Chen, Suifang Wang, Han Wan
	Pinggang, Yangjiang	Xi Lin, Minghai Huang, Jie Yin
	Moyangjiang estuary, Yangjiang	Weiguo Ke, Xiaojia Wu, Wan-er Liang
	Donghai Island, Zhanjiang	Tao He, Guangxuan Lin, Wei Zhang, Yaojun Zhu, Minghao Gong, Huixin Li
	Beijia, Leizhou	Yinshan, Junrong Chen, Keda, Dashi Chen
	Hebei north, Leizhou	Lifeng Zhuang, Haiyan Wang, Yingqiao Chen, Wing-sum Bud, Chung-hoi Li
	Hebei south -Tujiao north, Leizhou	Li Tian, Mo, Linqi, Chong Zheng
	Tujiao north, Leizhou	Beijing Forestry University
	Tujiao south, Leizhou	P., Zhuoya Zhou, Danxia, Rubing Shen
	Leigao, Leizhou	Jinwen Zhou, Kang Mai, Li Cheng, Rourou Liang
	Hanjiang esuary, Shantou	Shiming Zeng, Kanghua Zheng
	Haojiang esuary, Shantou	Kanghua Zheng, Huanzhen Huang
	Changshawan, Haifeng	Canzhong Rong, Xiangwu Zeng
	Dahu, Haifeng	Canzhong Rong

Province	Location	Researchers
Guangxi	Xiniujiao, Qinzhou	Xiaobo Xiao, Xiaoying Guo, Xinyi Zhao, Caizhen Nong, Weiliang Xie, Qing Chen, Qing Chang
	Xichang, Beihai	Xiaobo Xiao, Xiaoying Guo, Xinyi Zhao, Jingru Tao, Qing Chen
	Daguansha, Beihai	Renjie Sun, Xiuguo Zhang, Jingzhen Zhong, Entao Wu, Xinrui Wang
	Zhulin saltern, Beihai	Renjie Sun, Xiuguo Zhang, Jingzhen Zhong, Entao Wu, Xinrui Wang
	Bailangtan, Fangchenggang	Shangbo Tang, Dongbo Liu
	Sanxinsha Island, Fangchenggang	Wei Zhang, Jiajie Sun, Desheng Liu
	Shaluoliao, Fangchenggang	Siqian Wu, Jiadeng Liang
	Jintan, Fangchenggang	Jingzhi Feng, Li Liu
Hainan	Dongchang, Danzhou	Lixiang Luo, Chuchu Xiao, Yuan Yuan, Qingge Ren
	Guangchun, Danzhou	Lixiang Luo, Chuchu Xiao, Yuan Yuan, Qingge Ren
	Xinying Salina, Danzhou	Zhengping Chen, Langxing Yuan, Chenghong Liao, Ting Cai
	Changhuajiang estuary, Dongfang	Qingli Jiao, Lihua Huang, Mei Wu, Xiuling Wu, Shaolian Chen
	Mianqianhai saltern, Dongfang	Qingli Jiao, Lihua Huang, Mei Wu, Xiuling Wu, Shaolian Chen

AN INTRODUCTION OF SBS CONSERVATION ALLIANCE

Habitat loss and fragmentation, global climate change and illegal hunting are threatening the critical endangered species, spoon-billed sandpiper (SBS). To promote domestic and overseas cooperation and collaboration of SBS conservation in China, it is crucial and urgent to establish SBS Conservation Alliance.

SBS Conservation Alliance aims at promoting communications among local governments, nature reserve offices, institutions, wetland park, wetlands of international importance, non-governmental organizations, bird watching society, eco-friendly entrepreneurs and all the people who concern wetland health and endangered species conservation. A framework of information exchange, experience and skills share, vocational training, ability development will be constructed to apply in SBS Conservation Alliance. SBS Conservation Alliance is responsible for improve the management of wetlands in China to provide refuge for SBS and other wildlife. It is also SBS Conservation Alliance's duty to raise public awareness and boost local biodiversity and well-being for the residents.

Members of SBS Conservation Alliance

Non-Governmental Organisations

The East Asian - Australasian Flyway Partnership (EAAFP) Secretariat

Shenzhen Mangrove Wetlands Conservation Foundation (MCF)

Society of Entrepreneurs and Ecology

Hong Kong Bird Watching Society

World Wildlife Fund (China)

Spoon-billed Sandpiper in China

Kunming Institute of Rosefinch

Haikou Duotan Wetland Institute

Guangxi Biodiversity Research and Conservation Association

Tianlai Nature Observation and Education Centre

Zhanjiang Bird Watching Society

Fujian Bird Watching Society

Xiamen Bird Watching Society

Wenzhou Bird Watching Society

Guangxi Bird Watching Society

Beihai Bird Watching Society

Jiangsu Bird Watching Society

Maoming Bird Watching Society

Fenghuangyufei

Xiamen Jujiu Bio-technology Company

Shenzhen Mobile Phone Industry Society

Shenzhen Polymer Industry Association

Shenzhen & Hong Kong Project Center, Society of Entrepreneurs & Ecology

Guangxi Project Center, Society of Entrepreneurs & Ecology

Taihu Project Center, Society of Entrepreneurs & Ecology

Shenzhen Women's Chamber of Commerce

Protected Areas

Hainnan Xinying Mangrove National Wetland Park

Guangdong Neilingding Island and Futian National Nature Reserve

Fujian Minjiang River Estuary Wetland National Nature Reserve

Guangdong Haifeng Avian Provincial Nature Reserve

Guangxi Beilun Estuary National Nature Reserve

Tiaozini Wetland Management Centre

Institutions

Beijing Forestry University

Beijing Normal University

Xiamen University

Southern University of Science and Technology

Nanjing Normal University

Sun Yat-sen University

Institute of Geographic Sciences and Natural Resources Research

National Bird Banding Centre

Jiangsu Forestry Institute

Guangxi Mangrove Research Centre

Government Department

Dongtai Coastal Economic Zone Management Committee

Sincerely thank support from the following SBS Conservation Alliance members:

Society of Entrepreneurs and Ecology
Fujian Minjiang River Estuary Wetland National Nature Reserve
Guangdong Haifeng Avian Provincial Nature Reserve
Guangxi Beilun Estuary National Nature Reserve
Fujian Bird Watching Society
Fenghuangyufei