

Supporting Materials

Flyway structure, breeding, migration and wintering distributions of the globally threatened Swan Goose *Anser cygnoides* in East Asia

Table S1. Sixteen experts from seven countries discussed the distribution and migration range of Swan Geese during the “2nd International Symposium on Developing Effective Coordinated Monitoring of East Asian Waterbirds in the 21st Century”, held in Beijing, China, in October 2019.

No.	Name	Nationality	Institute
1	Oleg Goroshko	Russia	Daursky State Nature Biosphere Reserve, Russia
2	Alexey Antonov	Russia	Khingan Federal Nature Reserve, Russia
3	Tetsuo Shimada	Japan	The Miyagi Prefectural Izunuma-Uchinuma Environmental Foundation
4	Katsumi Ushiyama	Japan	Miyajimanuma Waterbird & Wetlands Center, Japan
5	Sachiko Moriguchi	Japan	Nippon Veterinary and Life Science University, Japan
6	Iderbat Damba	Mongolia	Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences
7	Nyambayar Batbayar	Mongolia	Wildlife Biologist, Wildlife Science and Conservation Center, Mongolia
8	Tseveenmyadag Natsagdorj	Mongolia	Wildlife Biologist, Wildlife Science and Conservation Center, Mongolia
9	Batmunkh Davaasuren	Mongolia	Wildlife Biologist, Wildlife Science and Conservation Center, Mongolia
10	Otgonbayar Tsend	Mongolia	Wildlife Biologist, Wildlife Science and Conservation Center, Mongolia
11	Lei Cao	China	Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences
12	Yong Zhang	China	Nanjing Forestry University
13	Geriletu Zhao	China	Inner Mongolia Normal University
14	Anthony David Fox	Denmark	Aarhus University, Denmark
15	Han Soo Lee	South Korea	Korea Institute of Environmental Ecology
16	George Archibald	Canada	International Crane Foundation (ICF), USA

Table S2. Parameters recorded for 259 individual Swan Geese, from two migratory flyways, fitted with solar-powered GPS/GSM telemetry devices that completed at least one spring or autumn migration during 2014–2018. Swan Geese of the Inland flyway included 77 birds (25 female adults, 27 male adults, five female juveniles, 10 male juveniles, three adults with unknown sex, three females with unknown age, three males with unknown age, one bird with unknown sex and age) which were tracked from 13 lakes of Mongolia and 169 individuals (83 female adults, 86 male adults) tracked from Hulun Lake, China. In addition, 10 birds (two female adults, three male adults, one female juvenile, one female with unknown age, three males with unknown age) were caught in the Yangtze River floodplain, their main wintering area in China. Swan Geese of the Coastal flyway included three birds (unknown sex and age) which were tracked from Jianghua Bay, South Korea, a key staging site. Note: age, sex (? = unknown), capture sites and dates, attachment method and body mass at capture are provided. Ad = adult, juv = juvenile, M = male, F = female. * = sex based on genetic sex determination; † = sex based on field identification; # = migration start date (determined by GPS data) in this study; ## = migration end date (determined by GPS data) in this study.

ID	Age	Sex	Weight (g)	Catch site	Device manufacture	Device type	Device weight (g)	Start date#	End date##	No. of fixes
sg001	?	M*	3,750	Poyang Lake	HQXS	Backpack	24	05/03/2015	03/12/2015	5,012
sg002	?	M*	3,650	Poyang Lake	HQXS	Backpack	24	05/03/2015	04/15/2015	207
sg003	?	F*	3,000	Poyang Lake	HQXS	Backpack	24	05/03/2015	06/07/2015	741
sg004	Ad	M*	2,850	Poyang Lake	HQXS	Backpack	24	11/12/2015	04/10/2016	1,363
sg005	Ad	F*	2,685	Poyang Lake	HQXS	Backpack	24	14/12/2015	24/07/2016	575
sg006	Ad	F*	3,340	Poyang Lake	HQXS	Backpack	24	14/12/2015	21/04/2016	663
sg007	?	M*	3,245	Poyang Lake	KoEco	Backpack	50	14/12/2015	06/05/2016	1,735
sg008	Ad	M*	3,445	Poyang Lake	KoEco	Backpack	50	14/12/2015	31/10/2016	3,870
sg009	Ad	M*	3,460	Poyang Lake	Druid	Neck band	35	12/01/2017	03/04/2018	11,006
sg010	Juv	F*	2,500	Anhui Lakes	Druid	Neck band	45	12/11/2016	29/09/2018	11,712
sg011	?	?	?	Jianghua Bay	KoEco	Backpack	50	14/03/2015	16/05/2015	127
sg012	?	?	?	Jianghua Bay	KoEco	Backpack	50	14/03/2015	06/05/2015	107

sg013	?	?	Jianghua Bay	KoEco	Backpack	50	14/03/2015	24/04/2015	83
sg014	Ad	M*	Hulun Lake	Druid	Neck band	35	29/08/2017	11/04/2019	19,801
sg015	Ad	M*	Hulun Lake	Druid	Neck band	35	26/09/2017	31/03/2019	17,818
sg016	Ad	F*	Hulun Lake	Druid	Neck band	35	12/09/2017	31/05/2019	18,592
sg017	Ad	F*	Hulun Lake	Druid	Neck band	35	09/07/2017	11/04/2019	20,155
sg018	Ad	M*	Hulun Lake	Druid	Neck band	35	22/08/2017	09/04/2019	16,383
sg019	Ad	F*	Hulun Lake	Druid	Neck band	35	09/07/2017	11/04/2019	17,156
sg020	Ad	M*	Hulun Lake	Druid	Neck band	35	09/07/2017	11/04/2019	9,416
sg021	Ad	F*	Hulun Lake	Druid	Neck band	35	26/09/2017	11/04/2019	18,041
sg022	Ad	M*	Hulun Lake	Druid	Neck band	35	21/11/2017	25/05/2019	17,482
sg023	Ad	F*	Hulun Lake	Druid	Neck band	35	31/10/2017	11/04/2019	16,937
sg024	Ad	M*	Hulun Lake	Druid	Neck band	35	15/08/2017	02/02/2019	16,126
sg025	Ad	M*	Hulun Lake	Druid	Neck band	35	29/08/2017	06/01/2019	18,919
sg026	Ad	F*	Hulun Lake	Druid	Neck band	35	08/08/2017	25/01/2018	3,864
sg027	Ad	M*	Hulun Lake	Druid	Neck band	35	12/09/2017	16/01/2018	2,998
sg028	Ad	F*	Hulun Lake	Druid	Neck band	35	19/09/2017	08/04/2018	5,327
sg029	Ad	F*	Hulun Lake	Druid	Neck band	35	08/08/2017	23/11/2017	2,582
sg030	Ad	F*	Hulun Lake	Druid	Neck band	35	12/07/2017	11/04/2019	19,612
sg031	Ad	M*	Hulun Lake	Druid	Neck band	35	12/07/2017	05/04/2019	18,354
sg032	Ad	F*	Hulun Lake	Druid	Neck band	35	12/07/2017	11/04/2019	19,900
sg033	Ad	F*	Hulun Lake	Druid	Neck band	35	12/07/2017	10/04/2019	19,876
sg034	Ad	F*	Hulun Lake	Druid	Neck band	35	12/07/2017	20/04/2019	20,278
sg035	Ad	M*	Hulun Lake	Druid	Neck band	35	12/07/2017	08/06/2019	21,115
sg036	Ad	F*	Hulun Lake	Druid	Neck band	35	12/07/2017	09/04/2019	20,352
sg037	Ad	F*	Hulun Lake	Druid	Neck band	35	12/07/2017	26/04/2019	21,546
sg038	Ad	F*	Hulun Lake	Druid	Neck band	35	12/07/2017	11/04/2019	20,867
sg039	Ad	F*	Hulun Lake	Druid	Neck band	35	12/07/2017	11/04/2019	20,335
sg040	Ad	F*	Hulun Lake	Druid	Neck band	35	12/07/2017	11/04/2019	17,633

sg041	Ad	F*	3,050	Hulun Lake	Druid	Neck band	35	12/07/2017	26/01/2019	11,719
sg042	Ad	F*	2,750	Hulun Lake	Druid	Neck band	35	12/07/2017	13/02/2019	13,615
sg043	Ad	F*	2,880	Hulun Lake	Druid	Neck band	35	12/07/2017	15/10/2018	8,528
sg044	Ad	M*	3,345	Hulun Lake	Druid	Neck band	35	12/07/2017	18/09/2018	14,803
sg045	Ad	F*	2,890	Hulun Lake	Druid	Neck band	35	12/07/2017	21/09/2018	14,805
sg046	Ad	M*	2,540	Hulun Lake	Druid	Neck band	35	12/07/2017	05/05/2018	4,948
sg047	Ad	F*	2,780	Hulun Lake	Druid	Neck band	35	13/07/2017	21/04/2019	19,616
sg048	Ad	F*	2,445	Hulun Lake	Druid	Neck band	35	13/07/2017	10/04/2019	20,790
sg049	Ad	F*	2,385	Hulun Lake	Druid	Neck band	35	13/07/2017	11/04/2019	13,840
sg050	Ad	M*	3,145	Hulun Lake	Druid	Neck band	35	13/07/2017	12/04/2019	21,347
sg051	Ad	F*	2,635	Hulun Lake	Druid	Neck band	35	13/07/2017	22/05/2019	8,903
sg052	Ad	F*	2,400	Hulun Lake	Druid	Neck band	35	13/07/2017	15/04/2019	17,056
sg053	Ad	M*	3,220	Hulun Lake	Druid	Neck band	35	13/07/2017	30/04/2019	20,075
sg054	Ad	F*	2,495	Hulun Lake	Druid	Neck band	35	06/09/2017	09/04/2019	15,956
sg055	Ad	F*	2,770	Hulun Lake	Druid	Neck band	35	13/07/2017	10/04/2019	18,508
sg056	Ad	M*	2,810	Hulun Lake	Druid	Neck band	35	13/07/2017	11/04/2019	14,444
sg057	Ad	F*	2,890	Hulun Lake	Druid	Neck band	35	13/07/2017	31/03/2019	18,161
sg058	Ad	F*	2,920	Hulun Lake	Druid	Neck band	35	13/07/2017	10/04/2019	14,326
sg059	Ad	F*	2,815	Hulun Lake	Druid	Neck band	35	13/07/2017	11/04/2019	16,972
sg060	Ad	M*	3,560	Hulun Lake	Druid	Neck band	35	13/07/2017	03/04/2019	10,360
sg061	Ad	M*	3,565	Hulun Lake	Druid	Neck band	35	13/07/2017	09/04/2019	20,410
sg062	Ad	M*	2,995	Hulun Lake	Druid	Neck band	35	13/07/2017	04/04/2019	17,999
sg063	Ad	M*	3,545	Hulun Lake	Druid	Neck band	35	13/07/2017	10/04/2019	19,527
sg064	Ad	M*	3,015	Hulun Lake	Druid	Neck band	35	13/07/2017	09/04/2019	20,756
sg065	Ad	M*	3,225	Hulun Lake	Druid	Neck band	35	13/07/2017	12/04/2019	16,572
sg066	Ad	M*	3,650	Hulun Lake	Druid	Neck band	35	13/07/2017	15/04/2019	18,361
sg067	Ad	M*	3,275	Hulun Lake	Druid	Neck band	35	13/07/2017	15/04/2019	20,694
sg068	Ad	M*	3,555	Hulun Lake	Druid	Neck band	35	13/07/2017	11/04/2019	16,113

sg069	Ad	F*	2,220	Hulun Lake	Druid	Neck band	35	13/07/2017	07/04/2019	20,133
sg070	Ad	F*	2,515	Hulun Lake	Druid	Neck band	35	13/07/2017	11/04/2019	20,354
sg071	Ad	M*	3,090	Hulun Lake	Druid	Neck band	35	13/07/2017	05/04/2019	21,457
sg072	Ad	F*	3,090	Hulun Lake	Druid	Neck band	35	13/07/2017	11/04/2019	19,687
sg073	Ad	F*	2,440	Hulun Lake	Druid	Neck band	35	13/07/2017	10/04/2019	20,601
sg074	Ad	F*	2,730	Hulun Lake	Druid	Neck band	35	13/07/2017	22/04/2019	37,464
sg075	Ad	M*	3,635	Hulun Lake	Druid	Neck band	35	13/07/2017	01/04/2019	15,014
sg076	Ad	M*	3,390	Hulun Lake	Druid	Neck band	35	13/07/2017	15/04/2019	12,836
sg077	Ad	F*	2,790	Hulun Lake	Druid	Neck band	35	13/07/2017	25/04/2019	19,931
sg078	Ad	M*	3,545	Hulun Lake	Druid	Neck band	35	13/07/2017	11/04/2019	17,247
sg079	Ad	F*	3,070	Hulun Lake	Druid	Neck band	35	13/07/2017	10/04/2019	20,300
sg080	Ad	M*	3,200	Hulun Lake	Druid	Neck band	35	13/07/2017	11/04/2019	21,203
sg081	Ad	M*	3,445	Hulun Lake	Druid	Neck band	35	13/07/2017	25/04/2019	26,902
sg082	Ad	M*	3,265	Hulun Lake	Druid	Neck band	35	13/07/2017	25/01/2019	19,061
sg083	Ad	M*	2,265	Hulun Lake	Druid	Neck band	35	13/07/2017	23/03/2018	5,976
sg084	Ad	F*	2,710	Hulun Lake	Druid	Neck band	35	13/07/2017	24/12/2018	18,941
sg085	Ad	M*	3,710	Hulun Lake	Druid	Neck band	35	13/07/2017	02/02/2019	19,742
sg086	Ad	F*	2,865	Hulun Lake	Druid	Neck band	35	13/07/2017	18/04/2018	6,502
sg087	Ad	F*	2,770	Hulun Lake	Druid	Neck band	35	13/07/2017	10/11/2018	10,742
sg088	Ad	M*	3,210	Hulun Lake	Druid	Neck band	35	13/07/2017	22/09/2018	10,534
sg089	Ad	M*	3,450	Hulun Lake	Druid	Neck band	35	13/07/2017	26/01/2019	18,344
sg090	Ad	M*	3,360	Hulun Lake	Druid	Neck band	35	13/07/2017	18/12/2017	3,834
sg091	Ad	M*	2,910	Hulun Lake	Druid	Neck band	35	13/07/2017	10/04/2018	7,121
sg092	Ad	M*	2,575	Hulun Lake	Druid	Neck band	35	13/07/2017	18/04/2018	6,577
sg093	Ad	M*	3,125	Hulun Lake	Druid	Neck band	35	13/07/2017	27/08/2018	6,094
sg094	Ad	F*	3,400	Hulun Lake	Druid	Neck band	35	13/07/2017	12/12/2017	3,704
sg095	Ad	M*	3,335	Hulun Lake	Druid	Neck band	35	13/07/2017	14/11/2017	3,023
sg096	Ad	F*	2,335	Hulun Lake	Druid	Neck band	35	13/07/2017	09/04/2019	20,279

sg097	Ad	F*	2,485	Hulun Lake	Druid	Neck band	35	13/07/2017	09/04/2019	18,789
sg098	Ad	M*	3,205	Hulun Lake	Druid	Neck band	35	13/07/2017	07/04/2019	20,643
sg099	Ad	F*	2,640	Hulun Lake	Druid	Neck band	35	13/07/2017	08/04/2019	19,623
sg100	Ad	F*	2,855	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	13,884
sg101	Ad	M*	3,140	Hulun Lake	Druid	Neck band	35	14/07/2017	15/04/2019	19,881
sg102	Ad	F*	2,640	Hulun Lake	Druid	Neck band	35	14/07/2017	07/06/2019	21,881
sg103	Ad	F*	2,515	Hulun Lake	Druid	Neck band	35	14/07/2017	25/05/2019	20,136
sg104	Ad	M*	3,210	Hulun Lake	Druid	Neck band	35	14/07/2017	02/06/2019	22,481
sg105	Ad	F*	2,335	Hulun Lake	Druid	Neck band	35	14/07/2017	10/04/2019	19,837
sg106	Ad	M*	3,370	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,333
sg107	Ad	M*	3,400	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	21,292
sg108	Ad	F*	2,195	Hulun Lake	Druid	Neck band	35	14/07/2017	17/05/2019	19,293
sg109	Ad	M*	2,825	Hulun Lake	Druid	Neck band	35	14/07/2017	05/04/2019	16,328
sg110	Ad	F*	2,700	Hulun Lake	Druid	Neck band	35	14/07/2017	10/04/2019	20,397
sg111	Ad	M*	3,385	Hulun Lake	Druid	Neck band	35	14/07/2017	12/04/2019	40,226
sg112	Ad	M*	3,495	Hulun Lake	Druid	Neck band	35	14/07/2017	08/04/2019	20,229
sg113	Ad	M*	3,430	Hulun Lake	Druid	Neck band	35	14/07/2017	04/05/2019	19,801
sg114	Ad	F*	2,985	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,770
sg115	Ad	F*	2,630	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	18,136
sg116	Ad	F*	2,985	Hulun Lake	Druid	Neck band	35	14/07/2017	12/04/2019	9,275
sg117	Ad	F*	2,455	Hulun Lake	Druid	Neck band	35	14/07/2017	09/04/2019	19,656
sg118	Ad	F*	3,050	Hulun Lake	Druid	Neck band	35	14/07/2017	09/04/2019	20,348
sg119	Ad	F*	2,475	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,187
sg120	Ad	M*	3,065	Hulun Lake	Druid	Neck band	35	14/07/2017	08/04/2019	16,368
sg121	Ad	F*	2,360	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	17,860
sg122	Ad	F*	2,510	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,005
sg123	Ad	F*	1,925	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,460
sg124	Ad	F*	2,875	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	24,290

sg125	Ad	M*	3,520	Hulun Lake	Druid	Neck band	35	14/07/2017	21/03/2019	21,171
sg126	Ad	M*	3,280	Hulun Lake	Druid	Neck band	35	14/07/2017	30/05/2019	22,282
sg127	Ad	F*	2,770	Hulun Lake	Druid	Neck band	35	14/07/2017	08/04/2019	15,774
sg128	Ad	F*	2,880	Hulun Lake	Druid	Neck band	35	14/07/2017	24/04/2019	21,121
sg129	Ad	F*	2,760	Hulun Lake	Druid	Neck band	35	14/07/2017	29/05/2019	20,676
sg130	Ad	M*	3,465	Hulun Lake	Druid	Neck band	35	14/07/2017	07/06/2019	18,560
sg131	Ad	F*	2,740	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,637
sg132	Ad	M*	3,830	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	16,835
sg133	Ad	M*	3,290	Hulun Lake	Druid	Neck band	35	14/07/2017	09/04/2019	21,080
sg134	Ad	M*	3,670	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	21,228
sg135	Ad	M*	3,830	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,608
sg136	Ad	M*	3,145	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,032
sg137	Ad	F*	2,790	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,529
sg138	Ad	F*	2,675	Hulun Lake	Druid	Neck band	35	14/07/2017	19/03/2019	19,413
sg139	Ad	M*	3,015	Hulun Lake	Druid	Neck band	35	14/07/2017	27/03/2019	20,629
sg140	Ad	M*	3,650	Hulun Lake	Druid	Neck band	35	14/07/2017	11/05/2019	17,474
sg141	Ad	M*	3,570	Hulun Lake	Druid	Neck band	35	14/07/2017	30/05/2019	16,508
sg142	Ad	M*	2,820	Hulun Lake	Druid	Neck band	35	14/07/2017	19/04/2019	21,597
sg143	Ad	M*	3,125	Hulun Lake	Druid	Neck band	35	14/07/2017	04/04/2019	35,386
sg144	Ad	M*	2,530	Hulun Lake	Druid	Neck band	35	14/07/2017	08/04/2019	21,016
sg145	Ad	F*	2,615	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,078
sg146	Ad	F*	2,460	Hulun Lake	Druid	Neck band	35	14/07/2017	11/04/2019	20,322
sg147	Ad	M*	2,845	Hulun Lake	Druid	Neck band	35	14/07/2017	10/04/2019	20,253
sg148	Ad	M*	3,190	Hulun Lake	Druid	Neck band	35	14/07/2017	14/01/2018	4,520
sg149	Ad	F*	3,915	Hulun Lake	Druid	Neck band	35	14/07/2017	12/03/2018	5,951
sg150	Ad	F*	2,495	Hulun Lake	Druid	Neck band	35	14/07/2017	02/04/2018	6,445
sg151	Ad	M*	4,125	Hulun Lake	Druid	Neck band	35	14/07/2017	25/09/2018	9,861
sg152	Ad	M*	2,940	Hulun Lake	Druid	Neck band	35	14/07/2017	15/03/2018	5,937

sg153	Ad	M*	3,310	Hulun Lake	Druid	Neck band	35	14/07/2017	20/09/2018	14,844
sg154	Ad	F*	2,410	Hulun Lake	Druid	Neck band	35	14/07/2017	21/10/2018	16,041
sg155	Ad	M*	2,965	Hulun Lake	Druid	Neck band	35	14/07/2017	13/04/2018	6,694
sg156	Ad	M*	3,325	Hulun Lake	Druid	Neck band	35	14/07/2017	14/03/2019	18,949
sg157	Ad	M*	2,980	Hulun Lake	Druid	Neck band	35	14/07/2017	15/08/2018	7,774
sg158	Ad	F*	2,640	Hulun Lake	Druid	Neck band	35	14/07/2017	07/02/2019	10,797
sg159	Ad	F*	2,440	Hulun Lake	Druid	Neck band	35	14/07/2017	02/05/2018	5,643
sg160	Ad	M*	3,440	Hulun Lake	Druid	Neck band	35	14/07/2017	06/12/2018	16,931
sg161	Ad	M*	3,685	Hulun Lake	Druid	Neck band	35	14/07/2017	02/02/2019	13,089
sg162	Ad	M*	3,180	Hulun Lake	Druid	Neck band	35	14/07/2017	05/12/2017	3,465
sg163	Ad	M*	3,315	Hulun Lake	Druid	Neck band	35	14/07/2017	20/09/2018	10,452
sg164	Ad	M*	3,945	Hulun Lake	Druid	Neck band	35	14/07/2017	14/09/2018	14,608
sg165	Ad	F*	2,320	Hulun Lake	Druid	Neck band	35	14/07/2017	06/01/2019	15,817
sg166	Ad	M*	3,610	Hulun Lake	Druid	Neck band	35	14/07/2017	30/09/2018	15,195
sg167	Ad	F*	2,300	Hulun Lake	Druid	Neck band	35	14/07/2017	20/04/2018	7,584
sg168	Ad	F*	2,570	Hulun Lake	Druid	Neck band	35	14/07/2017	31/03/2018	6,546
sg169	Ad	M*	3,175	Hulun Lake	Druid	Neck band	35	14/07/2017	15/06/2018	10,235
sg170	Ad	F*	3,145	Hulun Lake	Druid	Neck band	35	14/07/2017	17/04/2018	7,216
sg171	Ad	M*	3,180	Hulun Lake	Druid	Neck band	35	14/07/2017	10/02/2019	19,436
sg172	Ad	M*	2,995	Hulun Lake	Druid	Neck band	35	14/07/2017	13/04/2018	7,187
sg173	Ad	M*	3,640	Hulun Lake	Druid	Neck band	35	14/07/2017	28/03/2018	6,346
sg174	Ad	M*	3,570	Hulun Lake	Druid	Neck band	35	14/07/2017	14/04/2018	7,263
sg175	Ad	M*	3,700	Hulun Lake	Druid	Neck band	35	14/07/2017	01/01/2019	15,613
sg176	Ad	M*	3,215	Hulun Lake	Druid	Neck band	35	14/07/2017	14/12/2018	17,144
sg177	Ad	F*	2,510	Hulun Lake	Druid	Neck band	35	14/07/2017	21/03/2019	19,971
sg178	Ad	F*	2,595	Hulun Lake	Druid	Neck band	35	14/07/2017	28/03/2018	6,127
sg179	Ad	F*	2,640	Hulun Lake	Druid	Neck band	35	14/07/2017	17/04/2019	17,057
sg180	Ad	F*	2,890	Hulun Lake	Druid	Neck band	35	14/07/2017	24/03/2019	33,922

sg181	Ad	M*	3,030	Hulun Lake	Druid	Neck band	35	15/07/2017	24/10/2018	16,413
sg182	Ad	F*	3,375	Hulun Lake	Druid	Neck band	35	16/07/2017	08/11/2017	2,793
sg183	Ad	M*	3,770	Uvs Lake	Druid	Neck band	35	07/07/2017	28/03/2019	9,252
sg184	Ad	F†	2,570	Uvs Lake	Ornitela	Neck band	45	16/07/2018	29/03/2019	27,710
sg185	Ad	F†	2,600	Uvs Lake	Ornitela	Neck band	45	17/07/2018	31/03/2019	20,673
sg186	Ad	F†	2,970	Uvs Lake	Ornitela	Neck band	45	17/07/2018	23/10/2018	13,967
sg187	Ad	F†	2,890	Taigan Lake	Ornitela	Neck band	45	26/07/2018	02/04/2019	228,568
sg188	Ad	F†	2,310	Taigan Lake	Ornitela	Neck band	45	27/07/2018	28/03/2019	22,186
sg189	Ad	M†	3,260	Taigan Lake	Ornitela	Neck band	45	27/07/2018	21/03/2019	21,891
sg190	Ad	F†	2,610	Taigan Lake	Ornitela	Neck band	45	27/07/2018	07/04/2019	23,578
sg191	Ad	F†	3,320	Taigan Lake	Ornitela	Neck band	45	27/07/2018	04/03/2019	19,875
sg192	Ad	M†	3,220	Taigan Lake	Ornitela	Neck band	45	27/07/2018	14/03/2019	12,683
sg193	Ad	F*	2,680	Ugii Lake	Druid	Neck band	35	13/07/2017	01/04/2019	19,779
sg194	Ad	F*	3,010	Ugii Lake	Druid	Neck band	35	13/07/2017	24/03/2019	20,122
sg195	Ad	F*	2,820	Ugii Lake	Druid	Neck band	35	13/07/2017	23/03/2019	19,059
sg196	Ad	F*	2,890	Ugii Lake	Druid	Neck band	35	13/07/2017	22/03/2019	18,564
sg197	Ad	F*	2,460	Ugii Lake	Druid	Neck band	35	13/07/2017	02/04/2019	19,311
sg198	Ad	M*	3,730	Ugii Lake	Druid	Neck band	35	13/07/2017	28/03/2019	8,079
sg199	Ad	M*	4,000	Ugii Lake	Druid	Neck band	35	13/07/2017	17/03/2019	13,861
sg200	Ad	F*	2,750	Ugii Lake	Druid	Neck band	35	13/07/2017	06/11/2018	16,903
sg201	Ad	M*	3,830	Ugii Lake	Druid	Neck band	35	13/07/2017	20/02/2019	11,279
sg202	Ad	M*	3,520	Ugii Lake	Druid	Neck band	35	13/07/2017	13/03/2018	5,786
sg203	Ad	M*	3,560	Ugii Lake	Druid	Neck band	35	13/07/2017	07/11/2017	2,831
sg204	Ad	M*	3,330	Ugii Lake	Druid	Neck band	35	13/07/2017	05/02/2019	19,048
sg205	Ad	M*	3,710	Ugii Lake	Druid	Neck band	35	13/07/2017	18/03/2018	5,964
sg206	Ad	M*	3,620	Ugii Lake	Druid	Neck band	35	13/07/2017	01/06/2018	9,451
sg207	Ad	M*	3,610	Ugii Lake	Druid	Neck band	35	13/07/2017	04/11/2018	12,265
sg208	Ad	M*	3,480	Ugii Lake	Druid	Neck band	35	13/07/2017	15/04/2019	12,661

sg209	Ad	F*	2,910	Ugii Lake	Druid	Neck band	35	13/07/2017	16/11/2017	3,063
sg210	Ad	M*	3,470	Ugii Lake	Druid	Neck band	35	13/07/2017	05/01/2018	4,208
sg211	Juv	M*	2,150	Galut Lake	Ecotone	Neck band	30	28/07/2014	10/01/2018	4,845
sg212	Juv	F*	1,970	Galut Lake	Ecotone	Neck band	30	28/07/2014	13/10/2016	2,168
sg213	Juv	F*	2,170	Galut Lake	Ecotone	Neck band	30	28/07/2014	14/04/2016	1,994
sg214	Juv	F*	2,260	Galut Lake	Ecotone	Neck band	30	29/07/2014	19/11/2015	1,590
sg215	Juv	M*	2,780	Galut Lake	Ecotone	Neck band	30	29/07/2014	16/12/2014	636
sg216	Juv	M*	2,970	Bus Lake	HQXS	Backpack	24	30/07/2014	03/04/2015	1,075
sg217	Ad	M*	3,660	Bus Lake	Ecotone	Neck band	30	30/07/2014	31/03/2016	2,367
sg218	Ad	F*	2,690	Bus Lake	Ecotone	Neck band	30	30/07/2014	14/01/2015	603
sg219	Juv	M*	2,030	Bus Lake	Ecotone	Neck band	30	30/07/2014	10/01/2018	3,550
sg220	Juv	M*	2,490	Bus Lake	Ecotone	Neck band	30	30/07/2014	23/12/2014	653
sg221	Ad	F*	2,440	Khaichiin tsagaan	Ecotone	Backpack	53	31/07/2014	01/01/2015	1,983
sg222	?	M*	3,130	Gurmen Lake	KoEco	Backpack	50	15/07/2015	30/03/2016	3,120
sg223	?	F*	2,600	Gurmen Lake	KoEco	Backpack	50	17/07/2015	16/12/2015	1,836
sg224	?	M*	4,000	Gurmen Lake	KoEco	Backpack	50	17/07/2015	06/06/2016	3,905
sg225	?	F*	3,100	Gurmen Lake	KoEco	Backpack	50	17/07/2015	24/07/2016	4,386
sg226	?	M*	3,480	Gurmen Lake	KoEco	Backpack	50	18/07/2015	19/04/2016	3,325
sg227	?	F*	2,920	Gurmen Lake	KoEco	Backpack	50	18/07/2015	04/06/2016	3,876
sg228	Juv	M*	2,030	Chukh Lake	Druid	Neck band	45	21/07/2016	09/11/2017	19,656
sg229	Ad	F*	2,480	Chukh Lake	Druid	Neck band	45	22/07/2016	07/12/2016	9,996
sg230	Juv	M*	2,460	Chukh Lake	Druid	Neck band	45	22/07/2016	28/11/2016	10,415
sg231	Juv	M*	2,050	Chukh Lake	Druid	Neck band	45	22/07/2016	24/03/2018	14,695
sg232	?	?	3,430	Chukh Lake	KoEco	Backpack	50	22/07/2016	03/04/2017	3,065
sg233	Juv	F*	2,180	Davsan tsagaan Lake	Druid	Neck band	45	23/07/2016	09/03/2017	12,357
sg234	Ad	M*	3,550	Davsan tsagaan Lake	Druid	Neck band	45	23/07/2016	12/04/2017	11,326
sg235	Juv	M*	2,390	Davsan tsagaan Lake	Druid	Neck band	45	23/07/2016	10/03/2017	12,132
sg236	Juv	M*	1,880	Galut Lake	Druid	Neck band	45	24/07/2016	30/12/2017	20,242

sg237	Ad	?	4,060	Galuu Lake	KoEco	Backpack	50	24/07/2016	22/12/2016	1,806
sg238	Ad	?	3,040	Galuu Lake	KoEco	Backpack	50	24/07/2016	09/04/2017	3,114
sg239	Juv	F*	2,060	Baruun eren Lake	Druid	Neck band	45	26/07/2016	14/04/2019	20,750
sg240	Ad	F*	2,400	Buir Lake	Druid	Neck band	35	21/07/2017	11/04/2019	19,585
sg241	Ad	F*	2,500	Buir Lake	Druid	Neck band	35	21/07/2017	11/04/2019	17,794
sg242	Ad	M*	3,000	Buir Lake	Druid	Neck band	35	21/07/2017	15/05/2019	17,878
sg243	Ad	M*	4,000	Buir Lake	Druid	Neck band	35	21/07/2017	16/04/2019	18,875
sg244	Ad	F*	2,500	Buir Lake	Druid	Neck band	35	21/07/2017	22/08/2018	9,020
sg245	Ad	F*	2,400	Buir Lake	Druid	Neck band	35	21/07/2017	21/08/2018	9,833
sg246	Ad	F*	2,500	Buir Lake	Druid	Neck band	35	21/07/2017	06/02/2019	17,909
sg247	Ad	F*	2,500	Buir Lake	Druid	Neck band	35	21/07/2017	19/11/2017	2,929
sg248	Ad	?	3,200	Buir Lake	Druid	Neck band	35	21/07/2017	22/11/2017	2,990
sg249	Ad	F*	2,900	Buir Lake	Druid	Neck band	35	21/07/2017	16/03/2019	12,810
sg250	Ad	M*	3,300	Buir Lake	Druid	Neck band	35	21/07/2017	02/12/2017	3,231
sg251	Ad	M*	3,400	Buir Lake	Druid	Neck band	35	21/07/2017	04/02/2019	5,747
sg252	Ad	M*	3,100	Buir Lake	Druid	Neck band	35	21/07/2017	08/10/2018	15,610
sg253	Ad	M*	3,700	Buir Lake	Druid	Neck band	35	21/07/2017	05/04/2018	6,531
sg254	Ad	M*	3,100	Buir Lake	Druid	Neck band	35	21/07/2017	26/03/2018	8,004
sg255	Ad	M*	3,600	Buir Lake	Druid	Neck band	35	21/07/2017	08/05/2018	7,990
sg256	Ad	M*	3,400	Buir Lake	Druid	Neck band	35	21/07/2017	02/07/2018	10,593
sg257	Ad	F*	2,600	Buir Lake	Druid	Neck band	35	21/07/2017	30/01/2018	4,696
sg258	Ad	M*	2,800	Buir Lake	Druid	Neck band	35	21/07/2017	28/01/2018	4,322
sg259	Ad	M*	3,100	Buir Lake	Druid	Neck band	35	21/07/2017	21/11/2017	2,985

Table S3. Maximum number of Swan Geese counted on the Yangtze River and the Minjiang River estuary, China, in South Korea and in Japan during mid-winter 1969/70–2019/20.

Year	Yangtze River	Minjiang River estuary	South Korea ^a	Japan ^b
1969/70	—	—		0
1970/71	—	—		0
1971/72	—	—		0
1972/73	—	—		0
1973/74	—	—		1
1974/75	—	—		0
1975/76	—	—		0
1976/77	—	—		0
1977/78	—	—		0
1978/79	—	—		0
1979/80	—	—		0
1980/81	—	—		0
1981/82	—	—		1
1982/83	—	—		0
1983/84	—	—		1
1984/85	—	—		0
1985/86	—	—		0
1986/87	—	—		0
1987/88	73,436 ^c	—		0
1988/89		—		0
1989/90		—		7
1990/91		—		1
1991/92		—		5
1992/93		—		0
1993/94	—	—		0
1994/95	—	—		0
1995/96	—	—		2
1996/97	—	—		2
1997/98	—	—		1
1998/99	50,527 ^c	—	2,546	0
1999/00	—	—	14	1
2000/01	—	—	13	7
2001/02	—	—	11	1
2002/03	—	1,000 ^d	3	0

Year	Yangtze River	Minjiang River estuary	South Korea ^a	Japan ^b
2003/04	64,683 ^c	—	36	0
2004/05	64,398 ^c	—	58	0
2005/06	93,952 ^c	810 ^e	55	2
2006/07	97,747 ^c	989 ^f	40	0
2007/08	80,566 ^c	950 ^g	27	0
2008/09	68,633 ^c	702 ^g	55	0
2009/10	41,869 ^c	310 ^h	88	1
2010/11	87,203 ^c	300 ^h	60	0
2011/12	—	770 ^h	9	1
2012/13	—	355 ^h	61	1
2013/14	—	300 ^h	38	2
2014/15	—	300 ^h	60	0
2015/16	25,236 ⁱ	20 ^h	57	1
2016/17	—	800 ^h	9	0
2017/18	29,100 ⁱ	435 ^h	112	0
2018/19	55,895 ⁱ	81 ^h	12	3
2019/20	51,791 ⁱ	500 ^h	43	—

Citations: ^a = Ministry of the Environment of South Korea unpubl. data from wintering birds census, conducted at 200 sites in South Korea during January 1999–2020; ^b = Ministry of the Environment of Japan unpubl. data from nationwide surveys, conducted in January 1970–2019; ^c = Jia *et al.* (2016); ^d = Yang (2004); ^e = Barter (2007); ^f = Hong Kong Birdwatching (2009); ^g = Hong Kong Birdwatching (2011); ^h = unpubl. data from Liu's wintering survey conducted at the Minjiang River estuary, Fujian Province, in January 2010–2020; ⁱ = unpubl. data from Cao's wintering survey conducted along Yangtze River floodplain in January 2016 and 2018–2020.

Table S4. Numbers of Swan Geese counted at four key wintering sites for the Inland flyway population in the Yangtze River floodplain during mid-January 2016, 2018–2020 and at six key sites for the Coastal flyway population ($n = 1$ in China, the Minjiang River estuary; $n = 5$ in South Korea) during mid-January 2016–2020. * = Lakes or wetlands where wintering counts were ≥ 540 birds for Inland and ≥ 4 birds for Coastal flyway populations.

Wintering population	Wetlands	Longitude	Latitude	2016	2017	2018	2019	2020
Inland flyway population	Shengjin Lake	116.992	30.303	132	–	370	14,477	1,700
	Taibo Lake	116.711	30.010	0	–	710	39	126
	Poyang Lake	116.363	29.026	24,987	–	27,438	40,489	48,341
	Wang Lake	115.344	29.860	0	–	100	55	755
	No. of key sites*			1		2	2	3
Coastal flyway population	Minjiang Estuary	119.634	26.031	20	800	435	81	500
	Han Estuary	126.755	37.632	53	2	0	4	11
	Sapgyo Reservoir	126.823	36.834	0	5	0	0	0
	Janghang Coast	126.628	36.090	0	0	108	0	26
	Suncheon Bay	127.506	34.870	2	0	0	0	6
	Junam Reservoir	128.689	35.311	2	2	4	7	0
	No. of key sites*			2	2	2	2	4