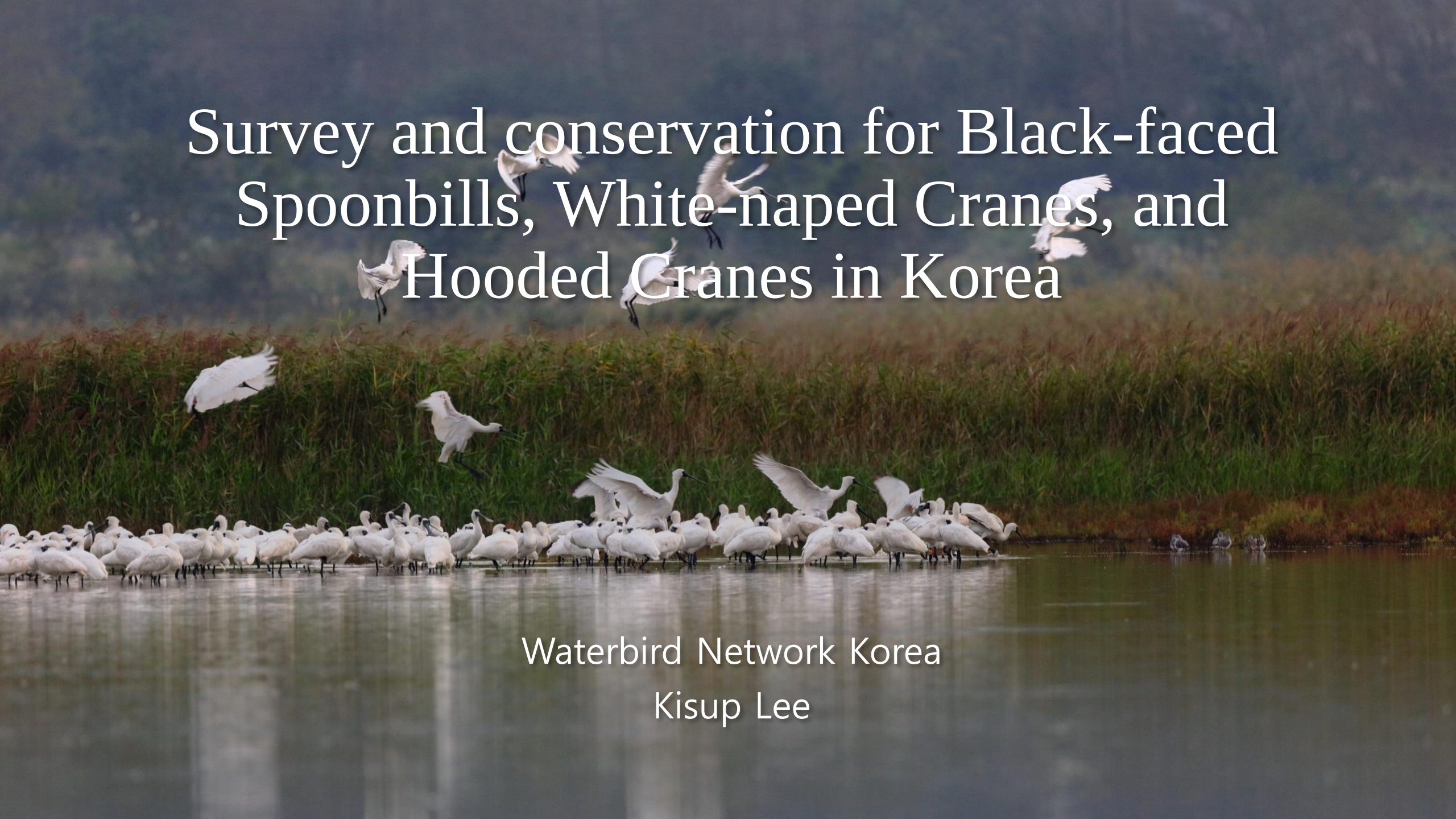
Survey and conservation for Black-faced Spoonbills, White-naped Cranes, and Hooded Cranes in Korea



Waterbird Network Korea

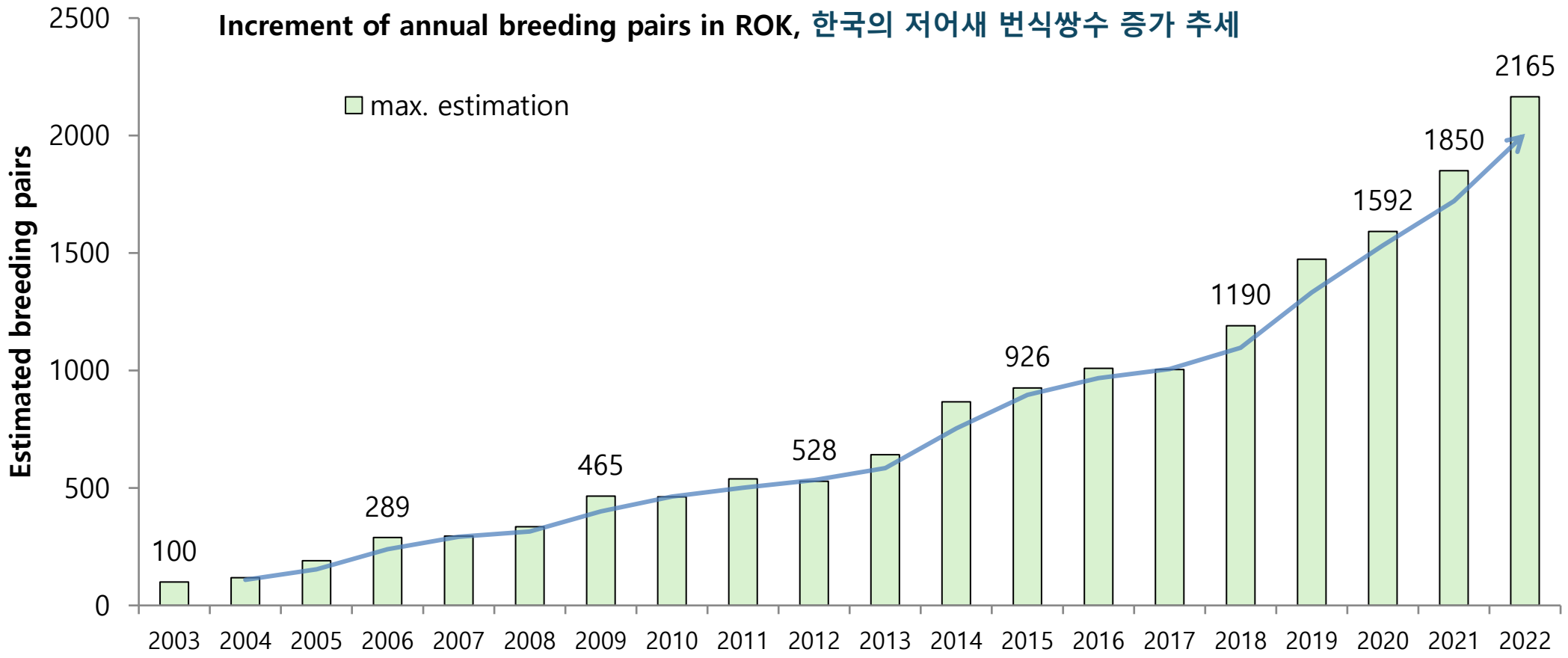
Kisup Lee

study of Black-faced Spoonbills

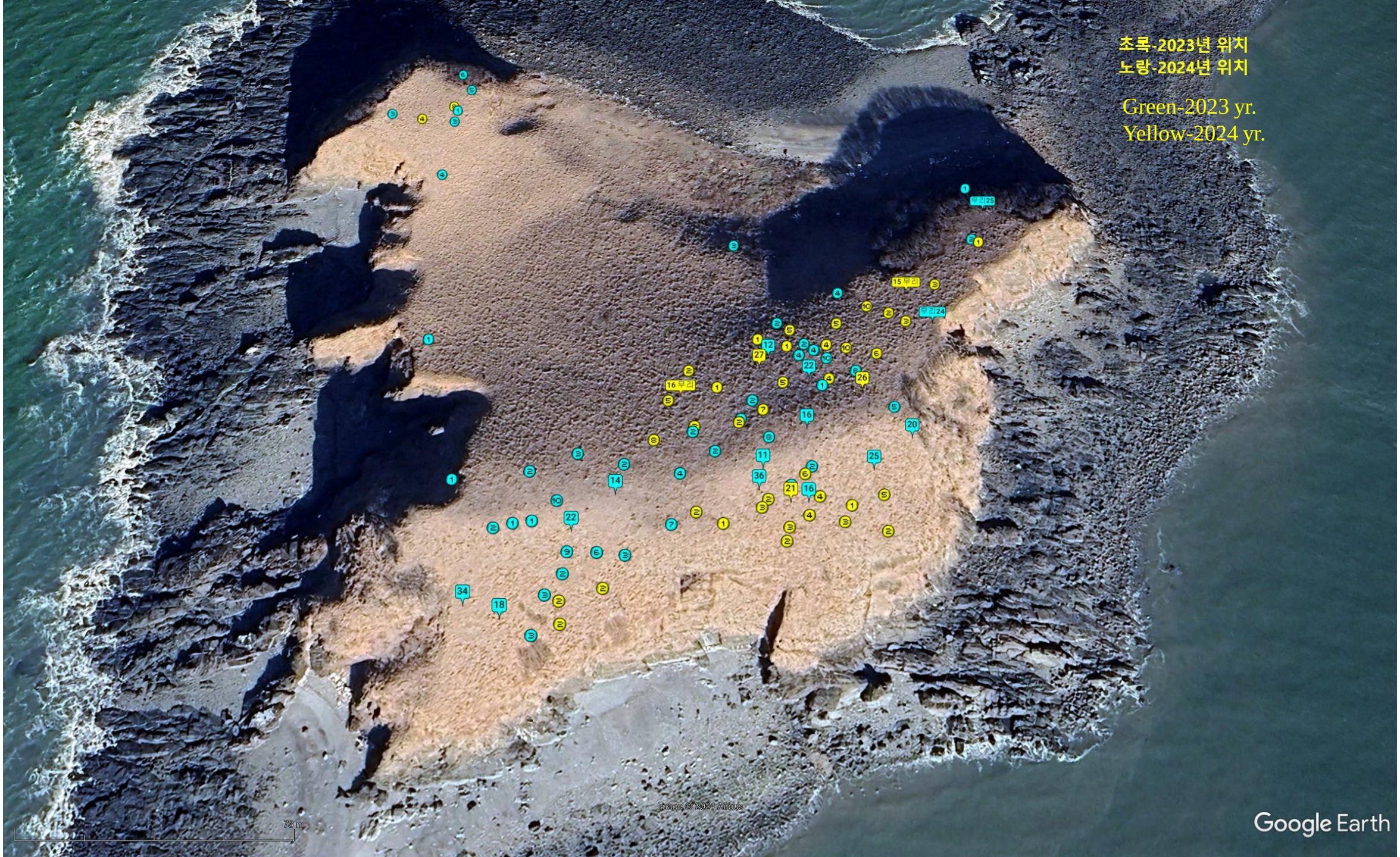
- Survey of breeding population in Korea
- Population monitoring after breeding season (Aug. ~ Nov.)
- Color banding and tracking studies

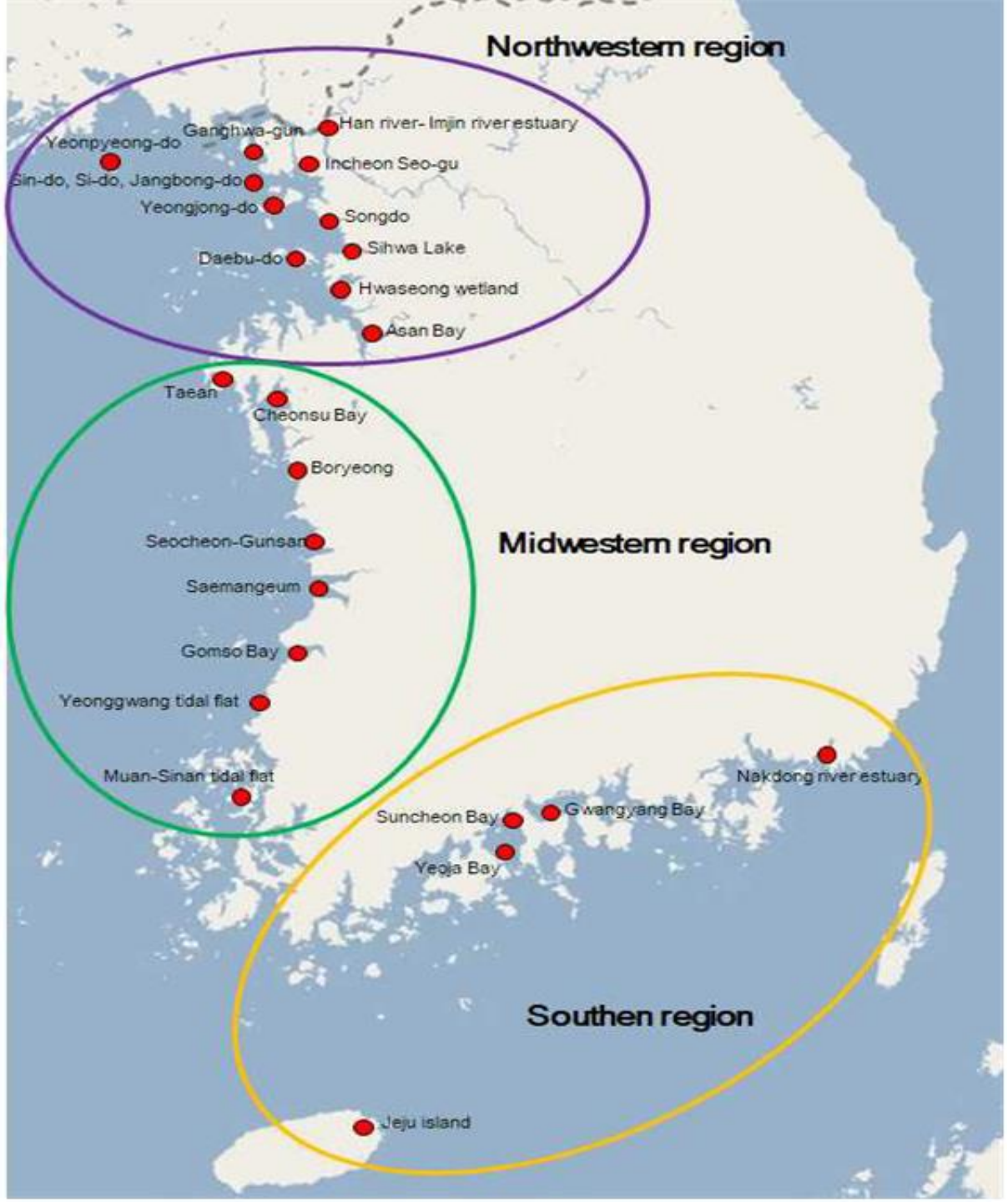
Annual change of breeding population of BFS in ROK

- Annual increment for past 20 years. 100 pairs in 2003, to 2,165 nests in 2022.
- Average 18% increment, excessive in ratio than Annual winter census, 10%.



Example of breeding site, Gujido

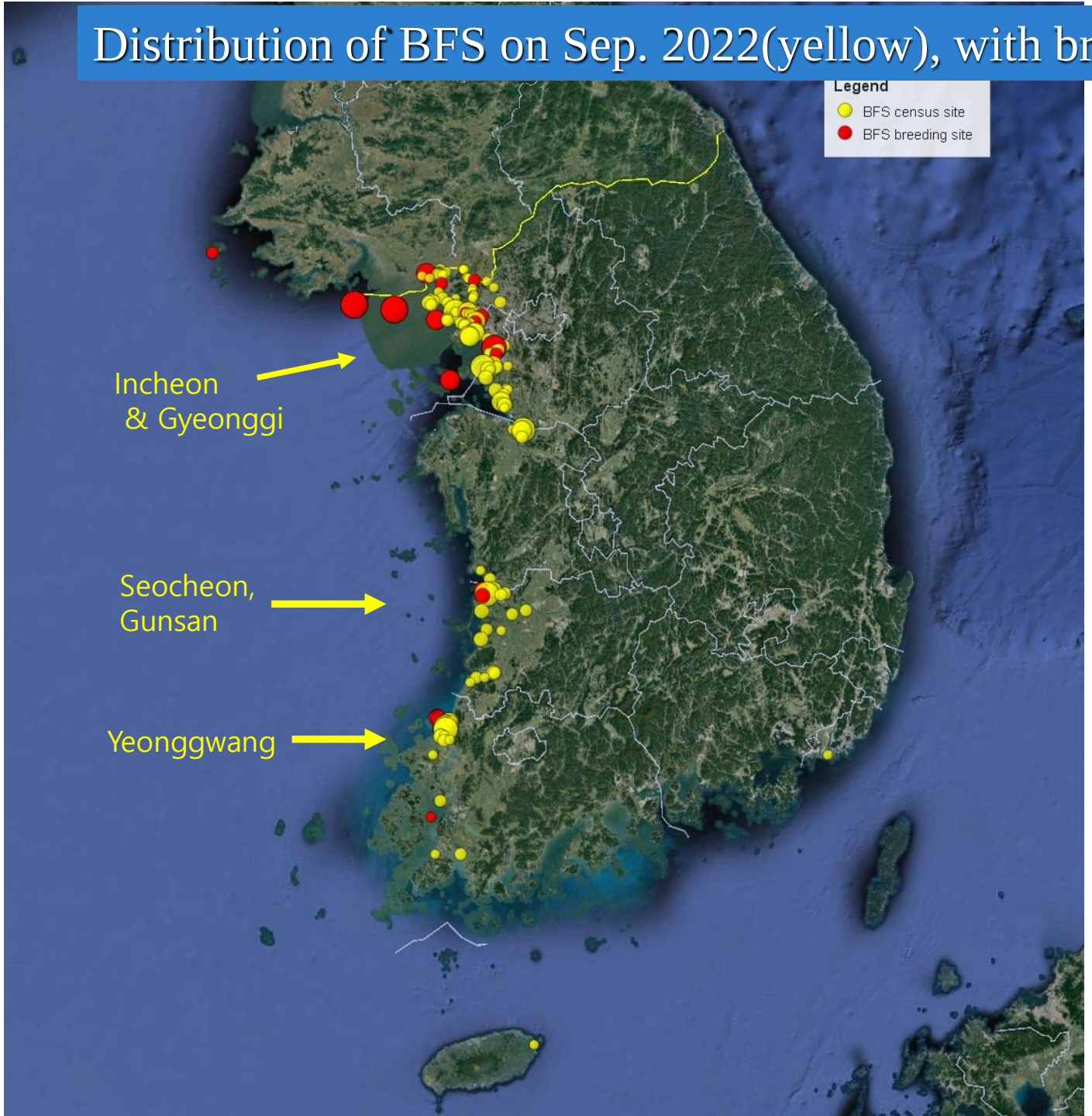

초록-2023년 위치
노랑-2024년 위치
Green-2023 yr.
Yellow-2024 yr.
Image © 2024 Airbus
Google Earth



Monitoring sites of BFS in ROK

- 3 region, 20 sites,
- Several points on each sites,
- Survye sites appointed to main habitat of BFS,
- Mainly distributed on west coast

Distribution of BFS on Sep. 2022(yellow), with breeding sites(red color)



Breeding population & Census Result

❑**breeding pairs**

total 23 sites assumed 2,165 nests, 2022,

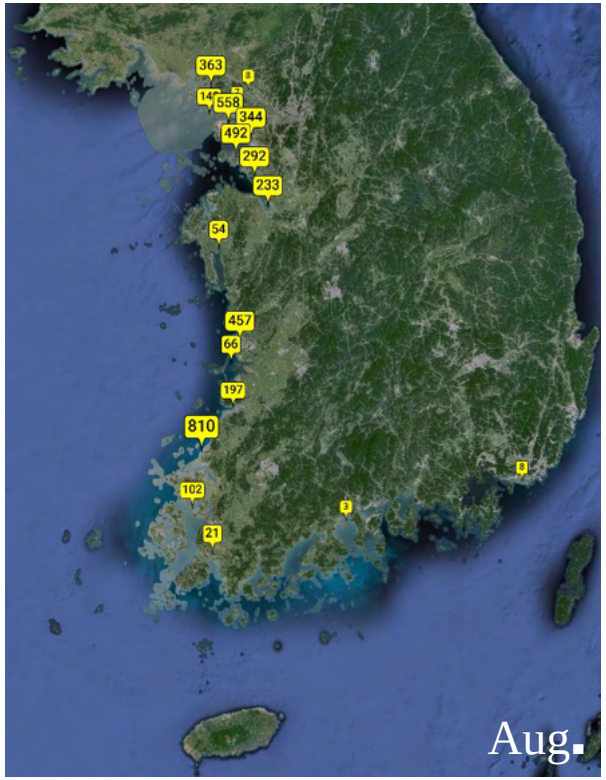
Incheon 80% of breeding population

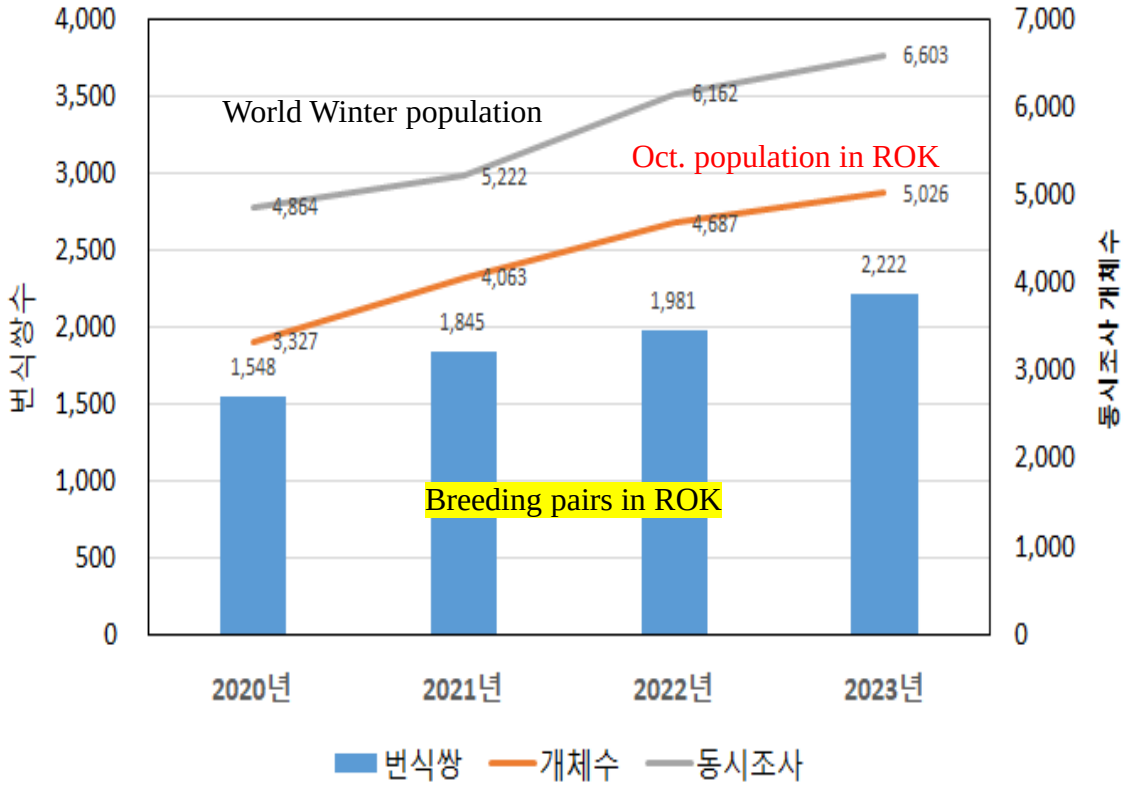
❑ **Census Result - 4,687 birds**

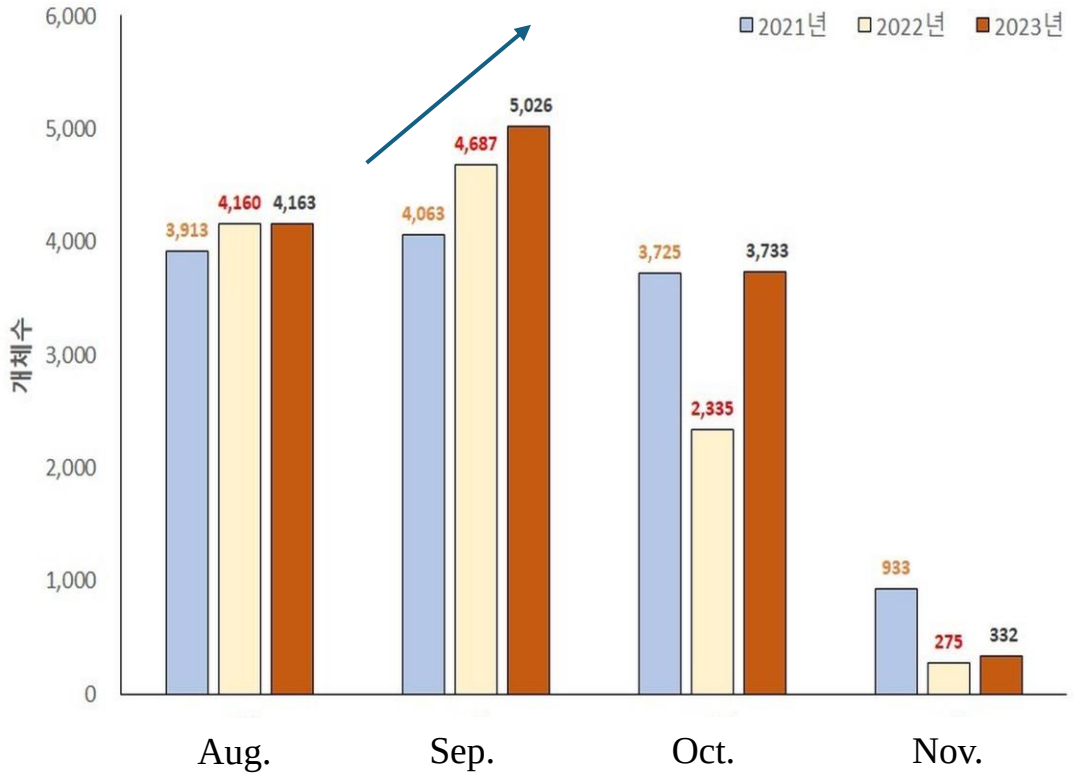
Incheon	1,627 birds (**35%**)
Gyeonggi	1,227 birds (26%)
Seocheon	695 birds (15%)
Yeonggwang	925 birds (20%)
Others	213 birds (4%)

Result of BFS monitoring

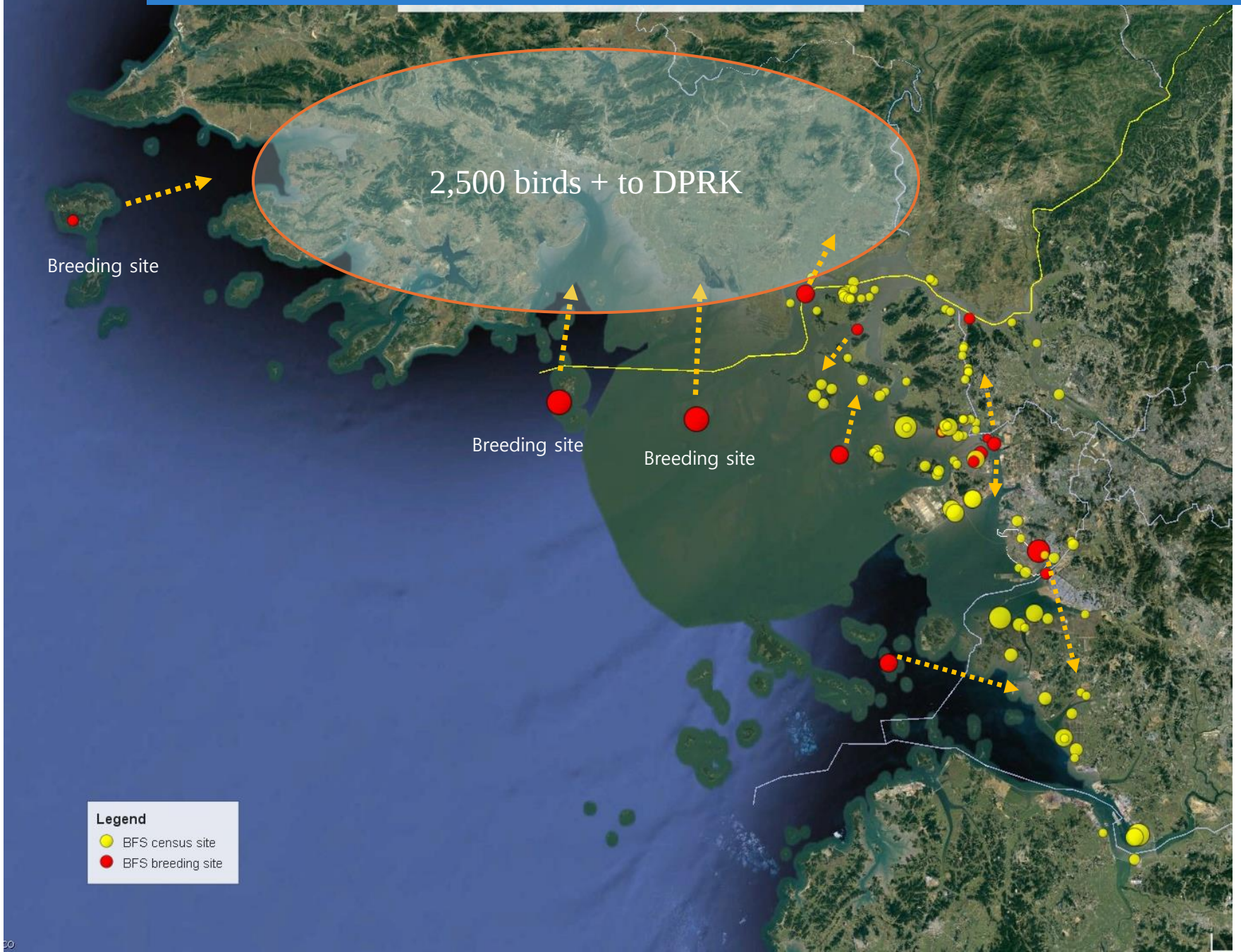
- Annual increment of population
- Mainly distributed on tide flat and reservoir along west
- tidal flats of Incheon, Gyeonggi, Seocheon, Yeonggwong were important sites.




World Winter population
Oct. population in ROK
Breeding pairs in ROK
번식쌍수
동시조사 개체수
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1,548
1,845
1,981
2,222
3,327
4,063
4,687
5,026
4,864
5,222
6,162
6,603
2020년
2021년
2022년
2023년
번식쌍
개체수
동시조사


2021년
2022년
2023년
개체수
6,000
5,000
4,000
3,000
2,000
1,000
0
3,913
4,160
4,163
4,063
4,687
5,026
3,725
2,335
3,733
933
275
332
Aug.
Sep.
Oct.
Nov.

2,500+ BFS would move to North Korea after breeding in Autumn



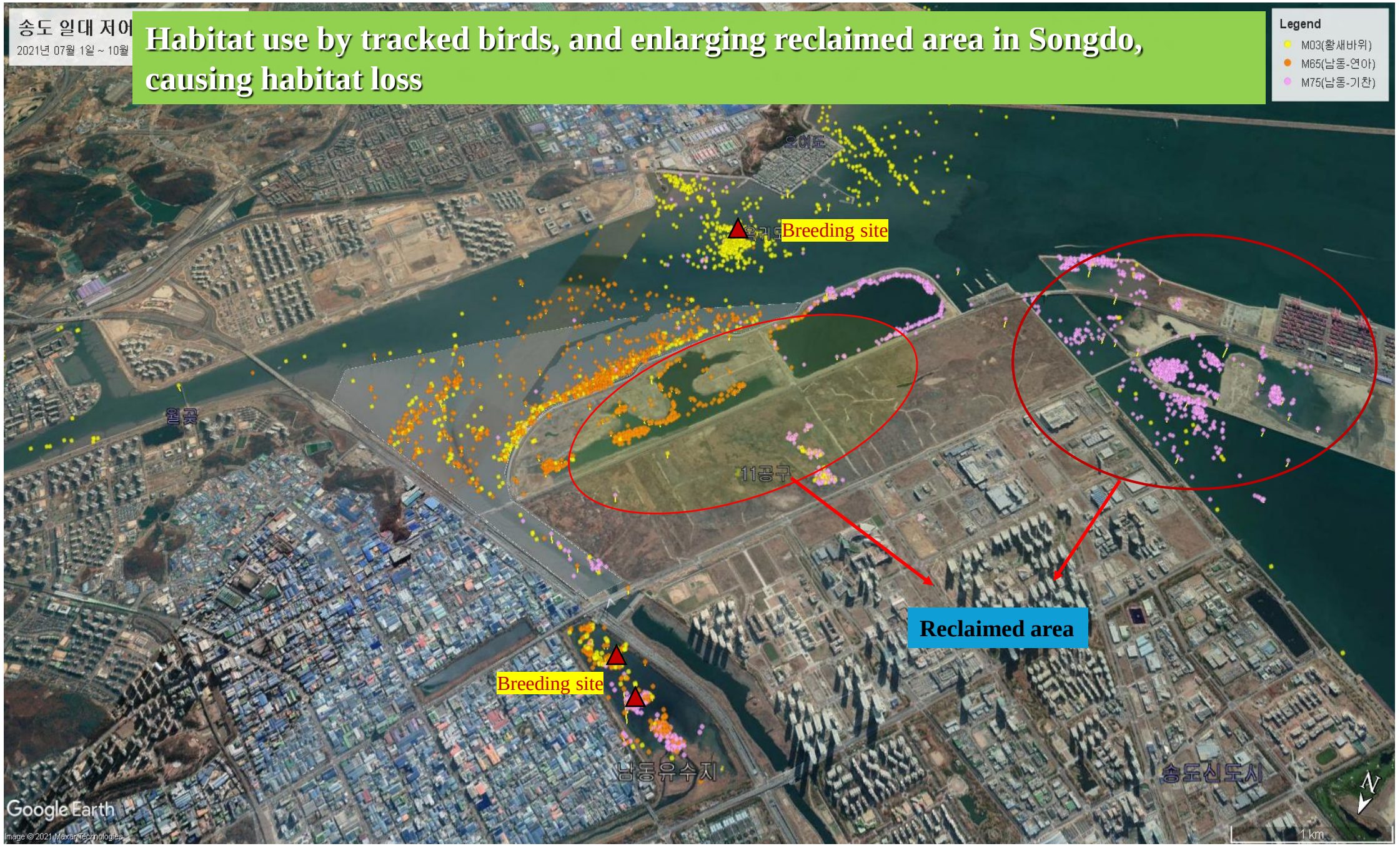
❑ **Breeding population**
about 1700 pairs on 12 sites in Incheon area
Approx. 800 pairs from 4 sites go to North Korea after bred with chicks.

❑ **Census Result**

Incheon (35%)	인천	1,627 birds
Gyeonggi (26%)	경기	1,227 birds

North Korea 북한
More than 2,500 birds??

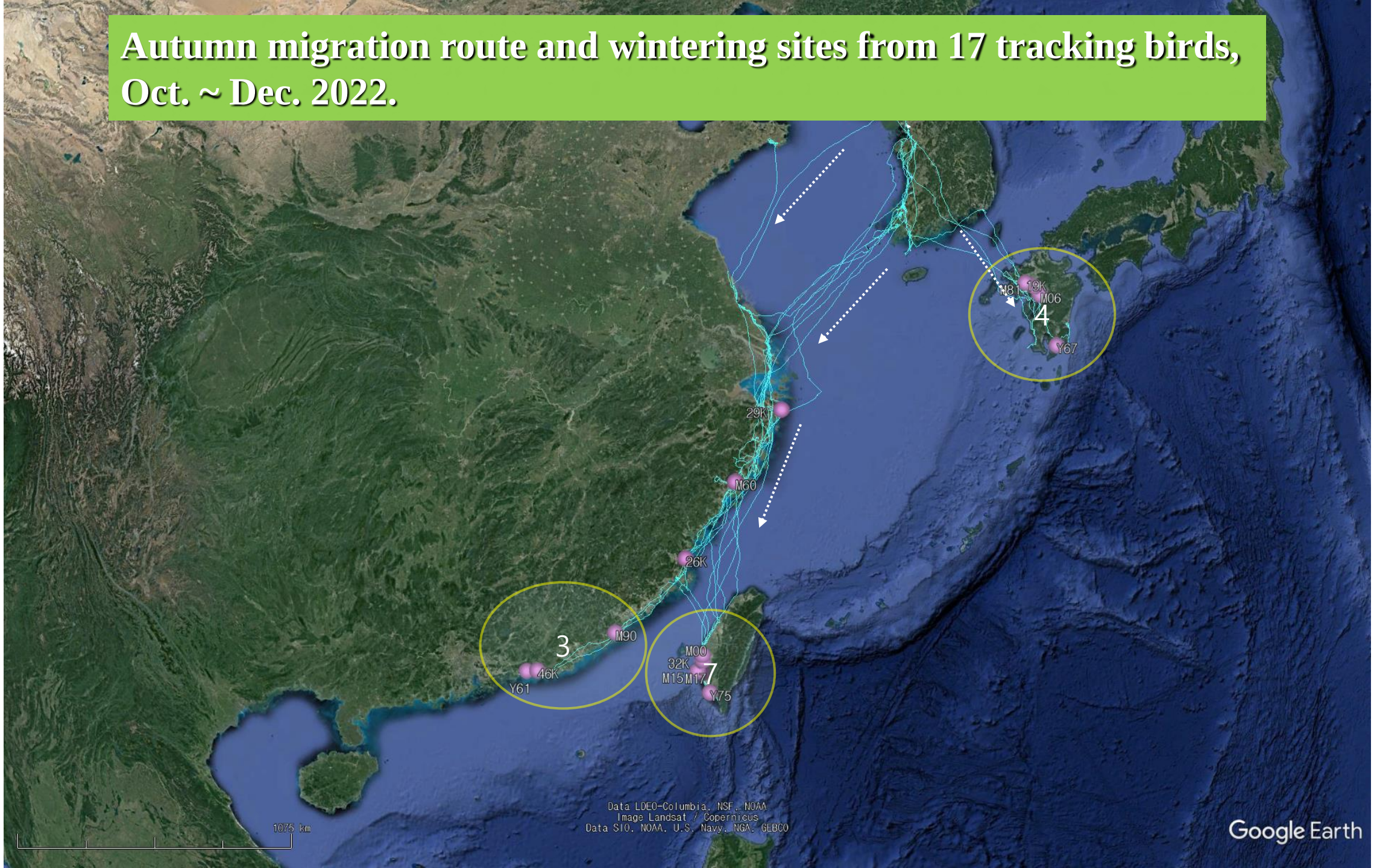

Tracking results of BFS color band M15, from Apr. 1 to June 15, 2024
Yonan-gun
Breeding site
Breeding site
Ganghwa-gun
Breeding site
Breeding site
Breeding site
Image © 2024 CNES / Airbus


송도 일대 저어
2021년 07월 1일 ~ 10월
Habitat use by tracked birds, and enlarging reclaimed area in Songdo, causing habitat loss
Legend
M03(황새바위)
M65(남동-연아)
M75(남동-기찬)
Breeding site
Breeding site
Reclaimed area
11공구
남동유수지
송도신도시
Google Earth
Image © 2021 Maxar Technologies
1 km

Autumn Migration route of tracking birds during 2020~2022 year.
West coastal area was important

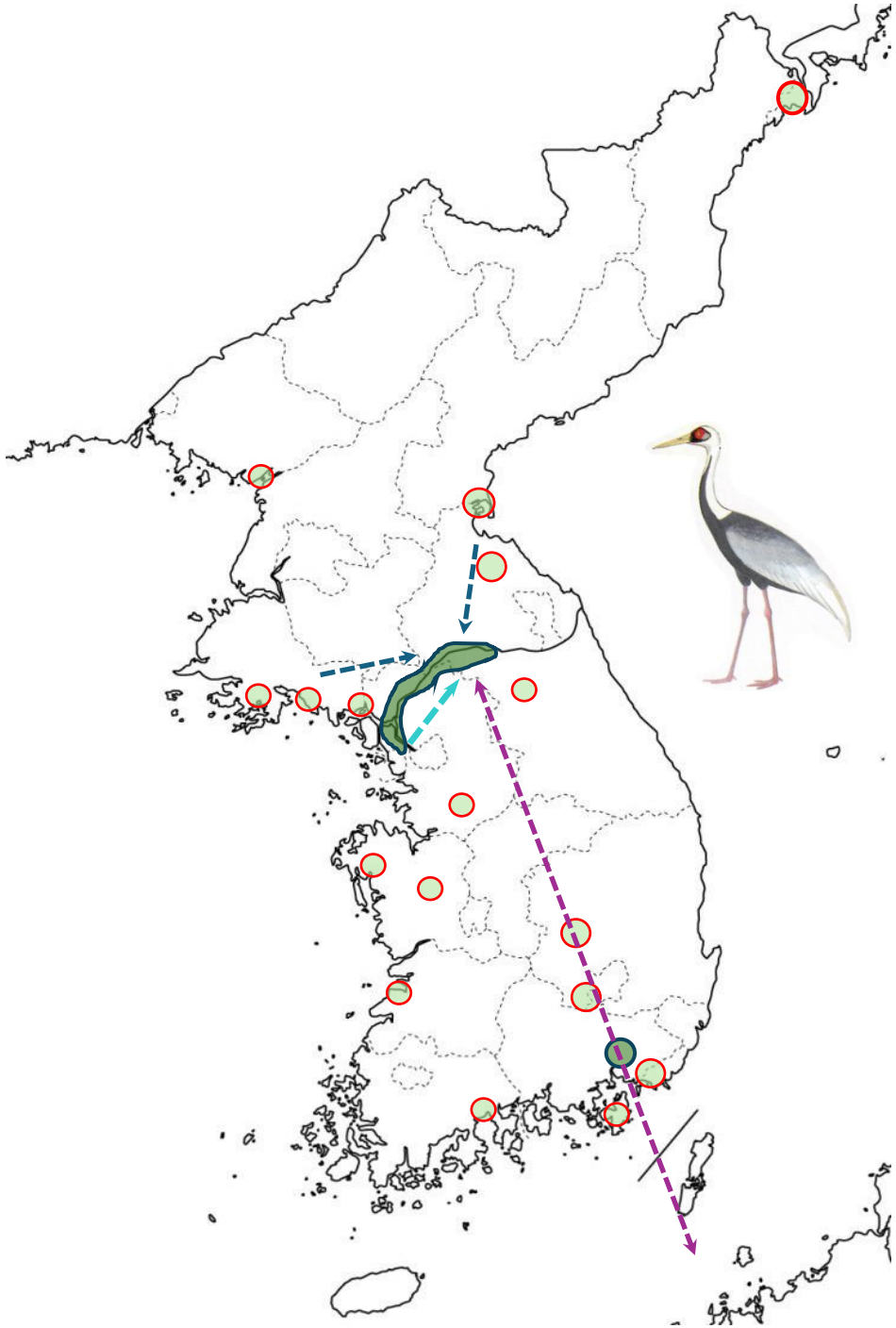
Main BFS sites in Sep.

Autumn migration route and wintering sites from 17 tracking birds, Oct. ~ Dec. 2022.



Study of Cranes

- Monthly survey of cranes from Oct. to March.
- Distribution study focusing on DMZ
- Habitat conservation activity on main sites



Distribution of White-naped Crane:

- Concentrated on the central and western DMZ, including Cheorwon and Civilian Control Zone (CCZ).
- Migrate to southern regions to Izumi, Japan

Arrival of White-naped Crane

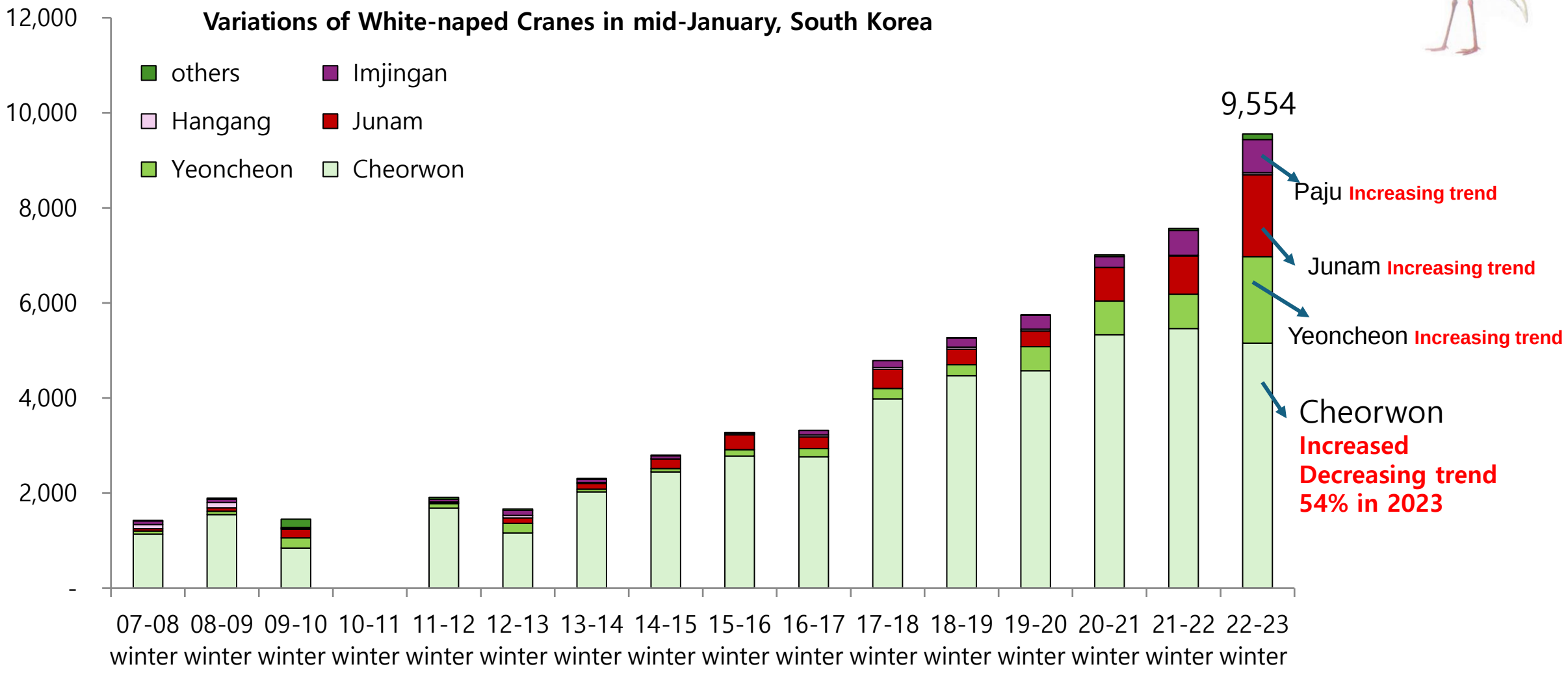
- 6,000 to 8,000 birds (recently increased, with a peak of 9,000 in 2022).
- Approximately 80% of the global populations arrives in Korea, with about 65% overwintering.
- Approximately 11,000 birds worldwide in 2022 (Japan 2,200-2,300, South Korea 7,500, China 1,500).

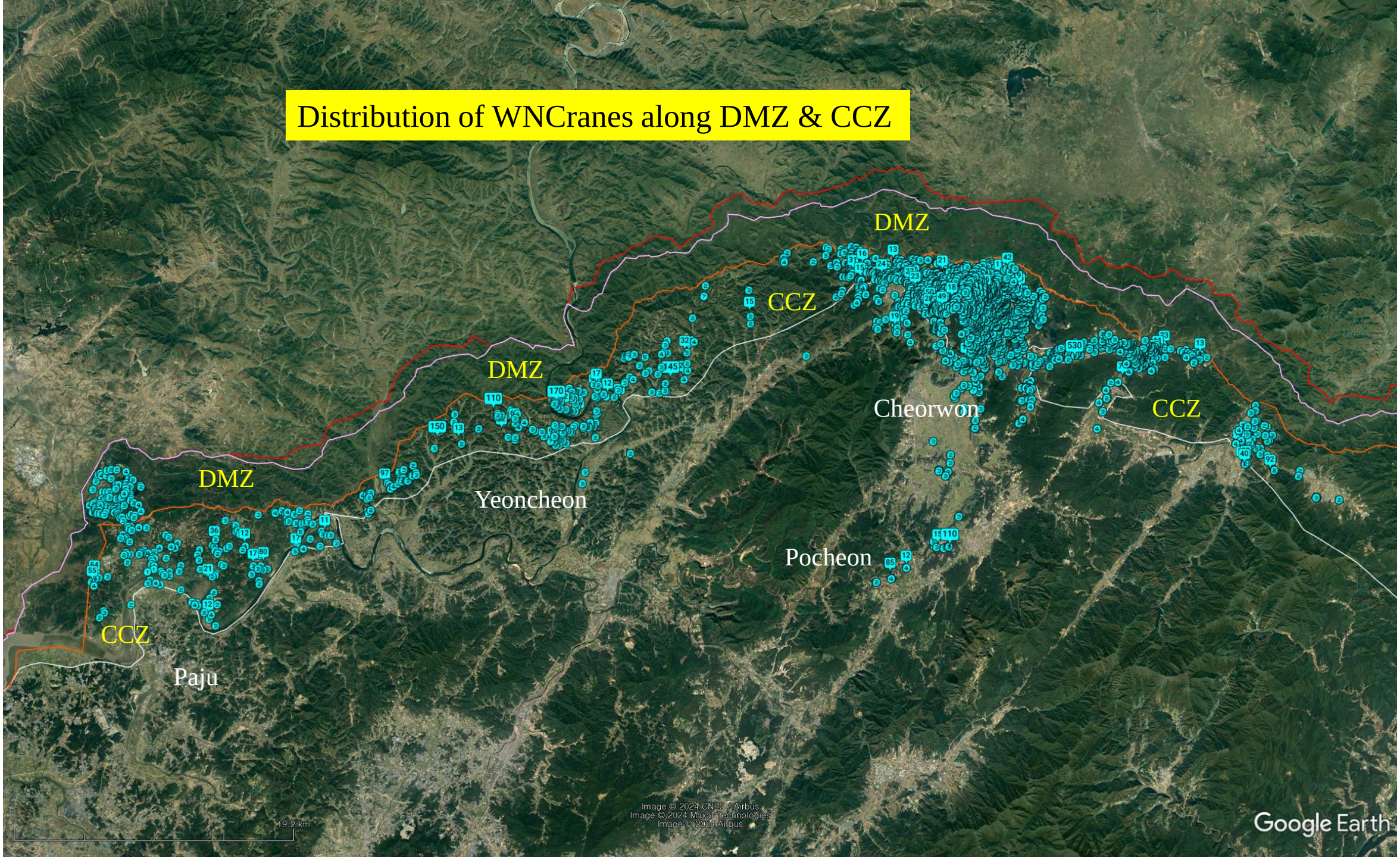
White-naped Crane

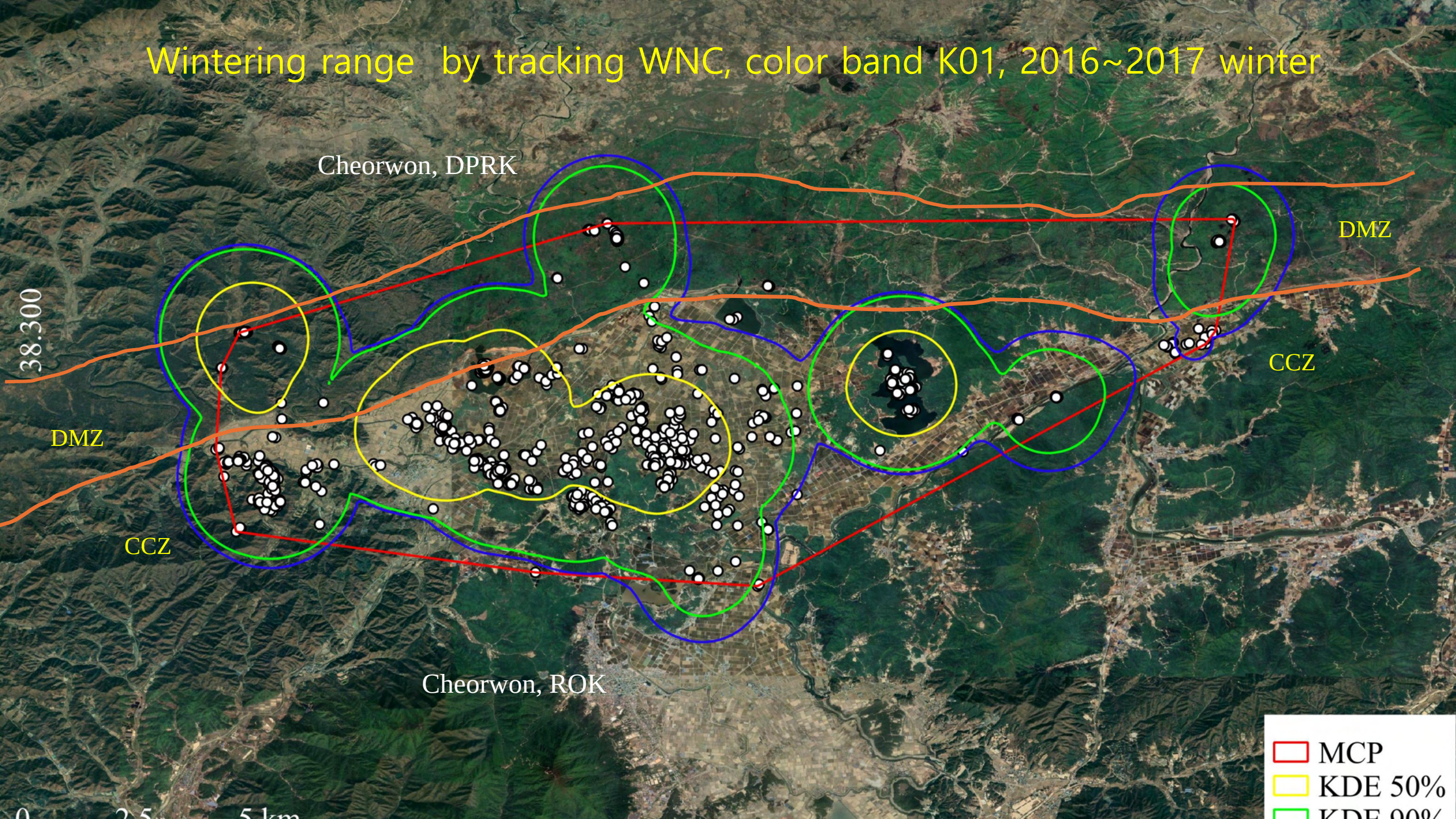
Historical migration records

population of White-naped Cranes in South Korea

- Increasing trend
- Record 9,554 individuals on January, 2023
- Overwintering populations increased along DMZ, and south on Junam Reservoir
- Most likely changes by cold weather, available food.

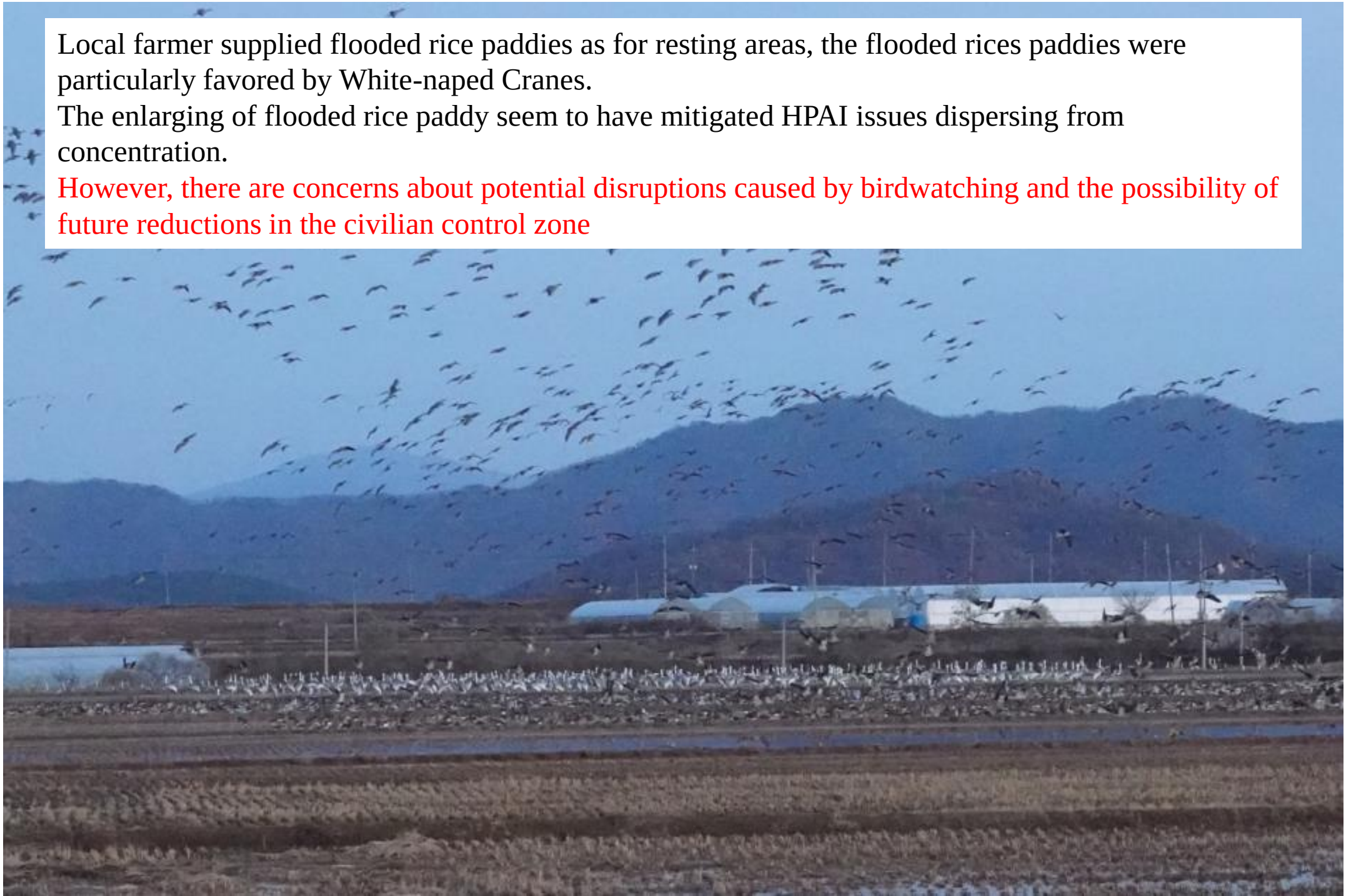



Distribution of WNCranes along DMZ & CCZ
DMZ
CCZ
DMZ
Cheorwon
CCZ
DMZ
Yeoncheon
Pocheon
CCZ
Paju
Image © 2024 CNES / Airbus
Image © 2024 Maxar Technologies
Image © 2024 Airbus
19.2 km
Google Earth


Wintering range by tracking WNC, color band K01, 2016~2017 winter
Cheorwon, DPRK
DMZ
38.300
DMZ
CCZ
CCZ
Cheorwon, ROK
MCP
KDE 50%
0
2.5
5 km

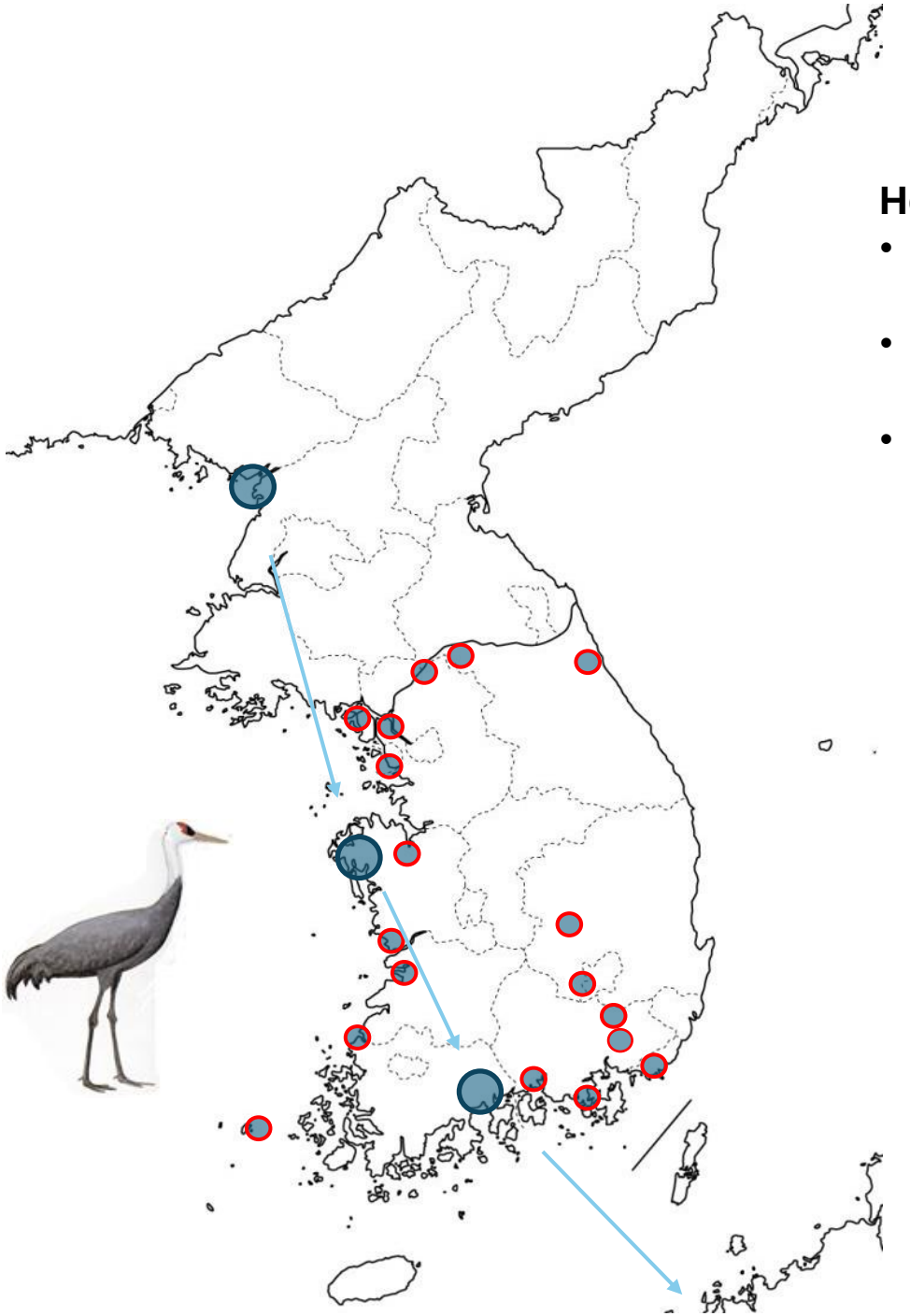
Most cranes stay on CCZ along DMZ. CCZ also attracts cranes by the provision of food.
However, concentration by artificial feeding can increase a threat of avian influenza outbreak.

Local farmer supplied flooded rice paddies as for resting areas, the flooded rices paddies were particularly favored by White-naped Cranes.
The enlarging of flooded rice paddy seem to have mitigated HPAI issues dispersing from concentration.
However, there are concerns about potential disruptions caused by birdwatching and the possibility of future reductions in the civilian control zone



Farmlands in civilian control zone, cranes tend to form larger flocks depending on the season. In January, they disperse in family or smaller groups, likely due to factors such as food scarcity, disturbances, and cold weather.

Threats include habitat reduction due to the increase of facilities like plastic greenhouses, and the risk of collisions with numerous power lines.



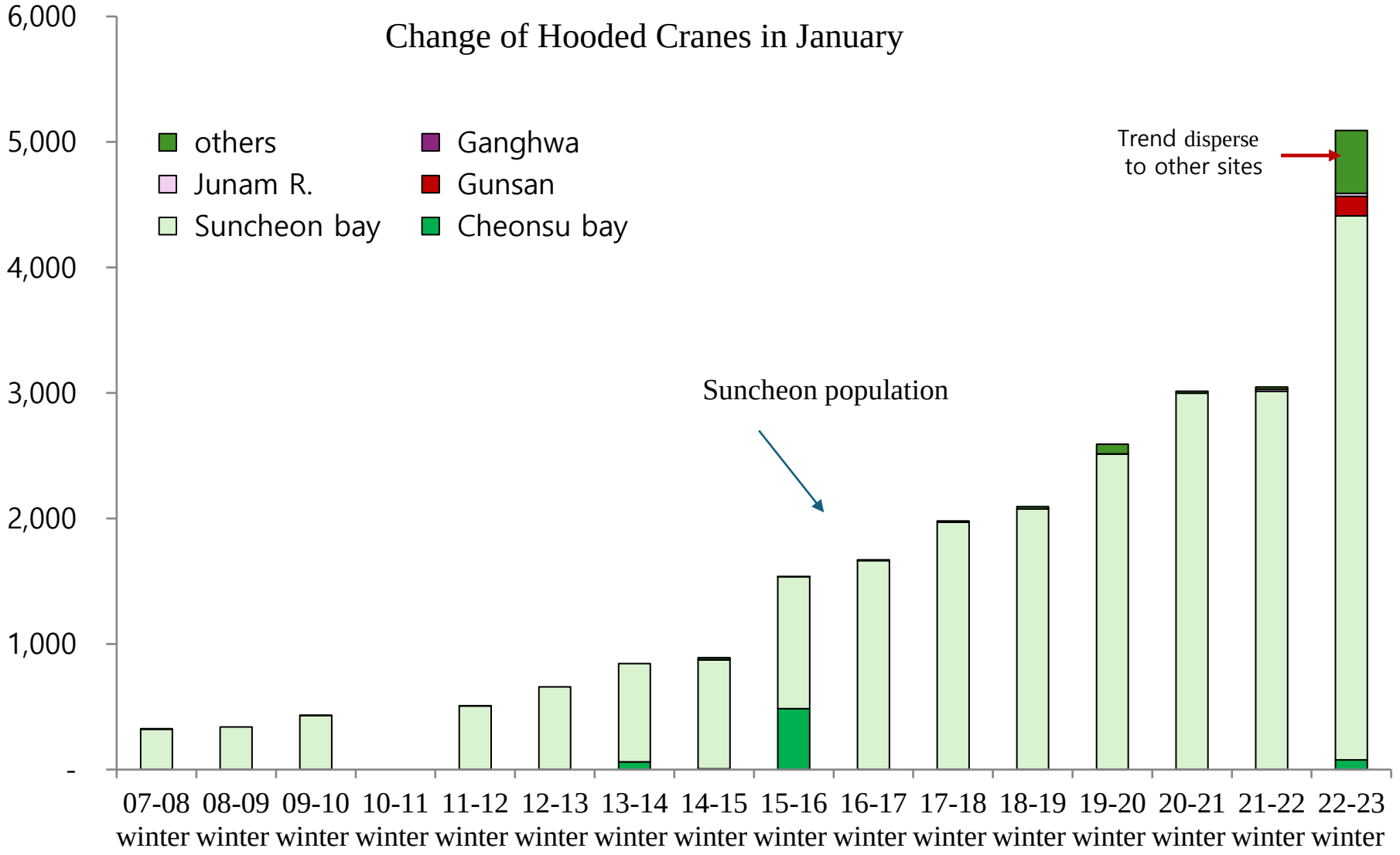
Hooded Crane in Korea :

- Concentration of wintering populations at Suncheon Bay (increasing from 300 to 3,000).
- Only a small number of individuals overwinter in other areas, dispersing problem.
- Cheonsu Bay and Mundeok are important stopover sites during spring migration.

Primary wintering area of Hooded Crane

Observed area

Increment of Hooded Cranes in ROK up to 5,000 wintering birds,
but still concentrated in Suncheon,
recently dispersing to other area after outbreak of HPAI

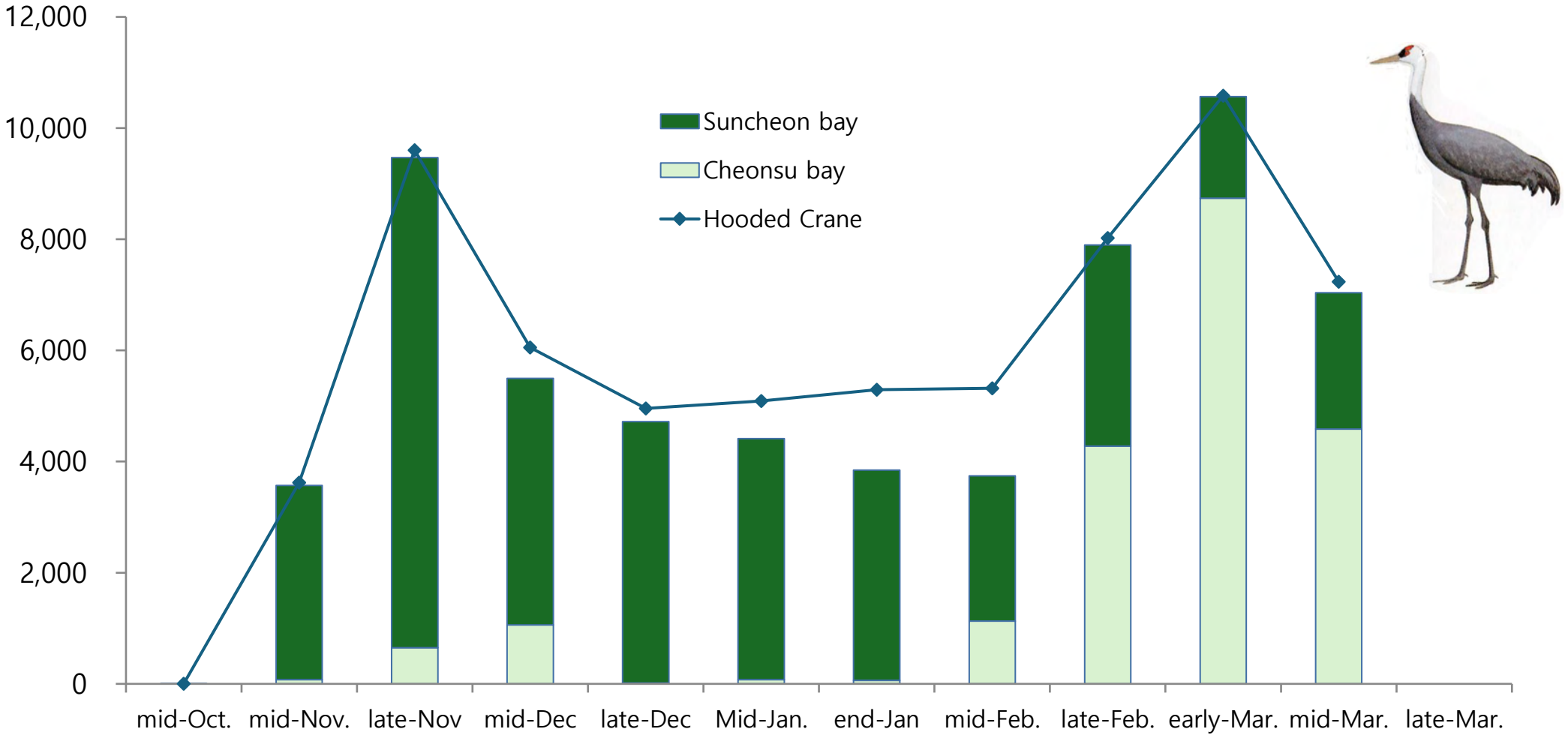


Data from winter census by NIBR

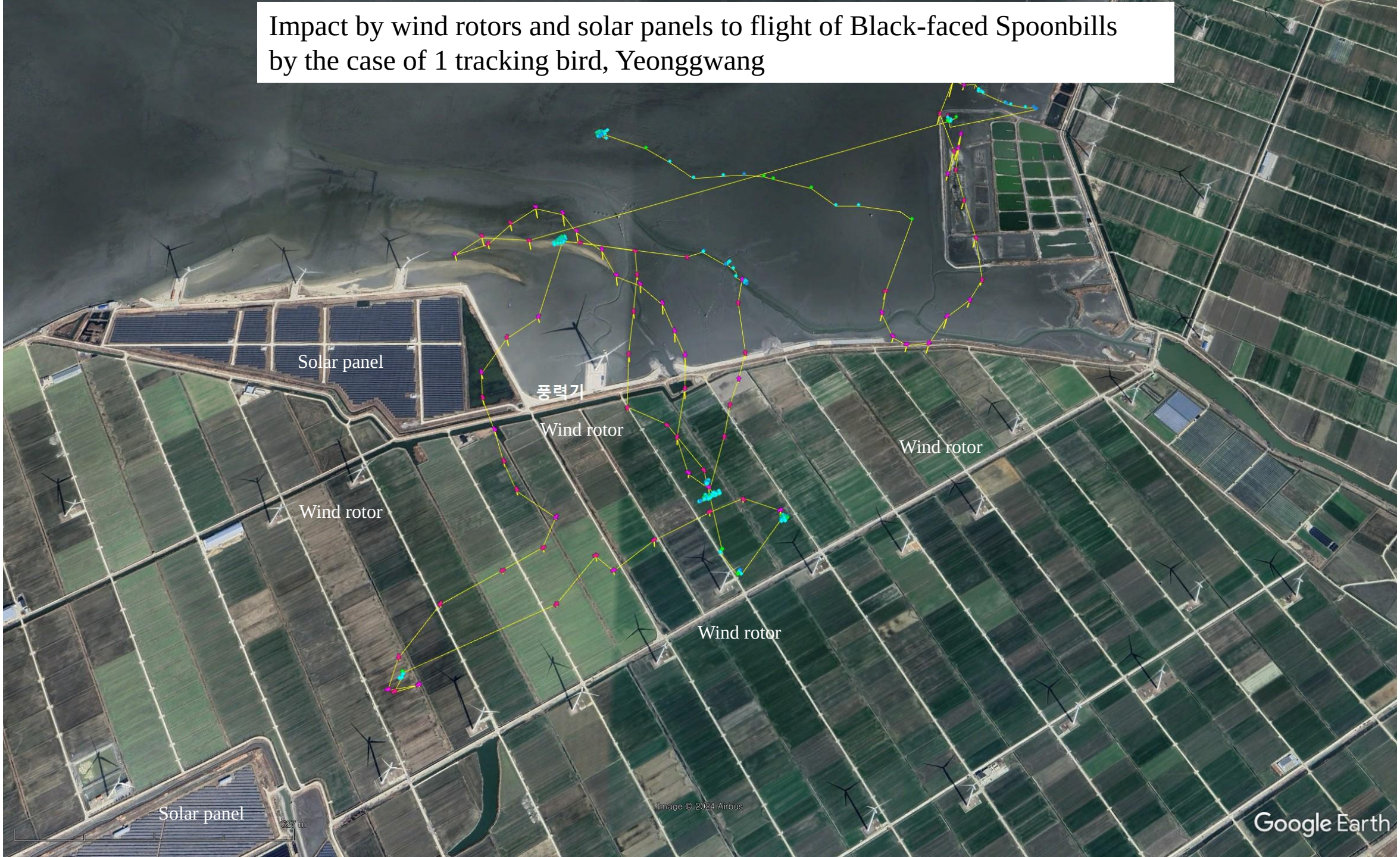
- Hooded Cranes on Sucheon bay- artificial feeding area

Artificial feeding has changed the population and migration route, case of Cheonsu bay

- Hooded Cranes primarily overwinters and arrives at Suncheon Bay and Cheonsu Bay in South Korea.
- Only a few birds overwinter along DMZ area.
- The low temperatures in DMZ along with the species' preference for coastal environments.



Impact by wind rotors and solar panels to flight of Black-faced Spoonbills by the case of 1 tracking bird, Yeonggwang



Migration Impact to BFS, color band M15, by offshore windfarm on Dongtai, Jiangsu