
Introduction to current work and key achievements and challenges

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About KEI

○ Korea Environment Institute (KEI)

- The KEI is a **government-funded research institute** under the Prime Minister's Office
 - KEI was initially established as the only research institute dedicated to environmental policy research in South Korea
 - In 1997, we became the KEI following the revision of the Environmental Impact Assessment Act, which led us to undertake Environmental Impact Assessments (EIAs) in addition to policy research
- Our research areas cover a wide range of topics, including climate, water, air, land, biodiversity, marine ecosystems, governance, economy, energy, health, environmental planning, international cooperation, and EIA

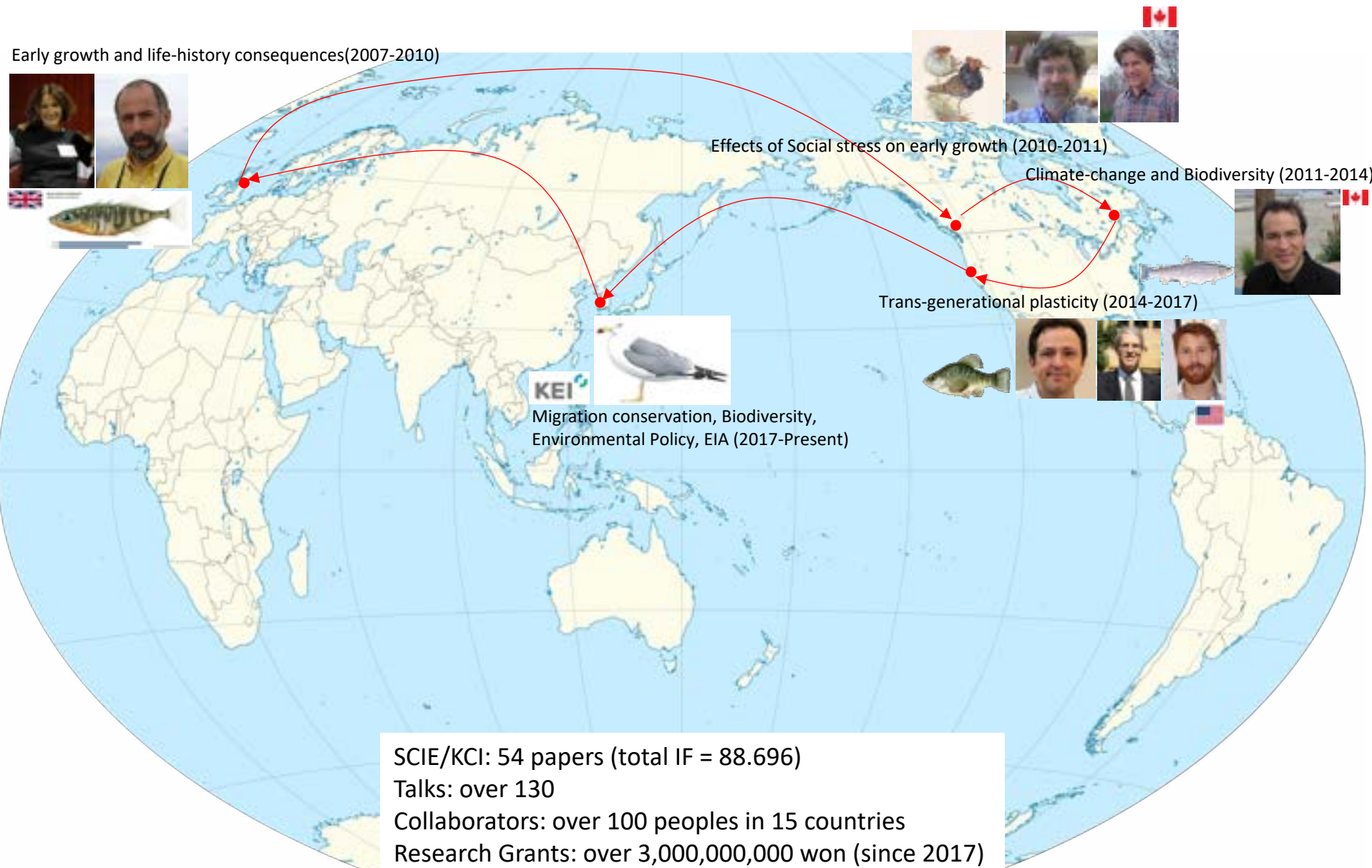
International Partners

KEI is working in collaboration with 61 international partners.

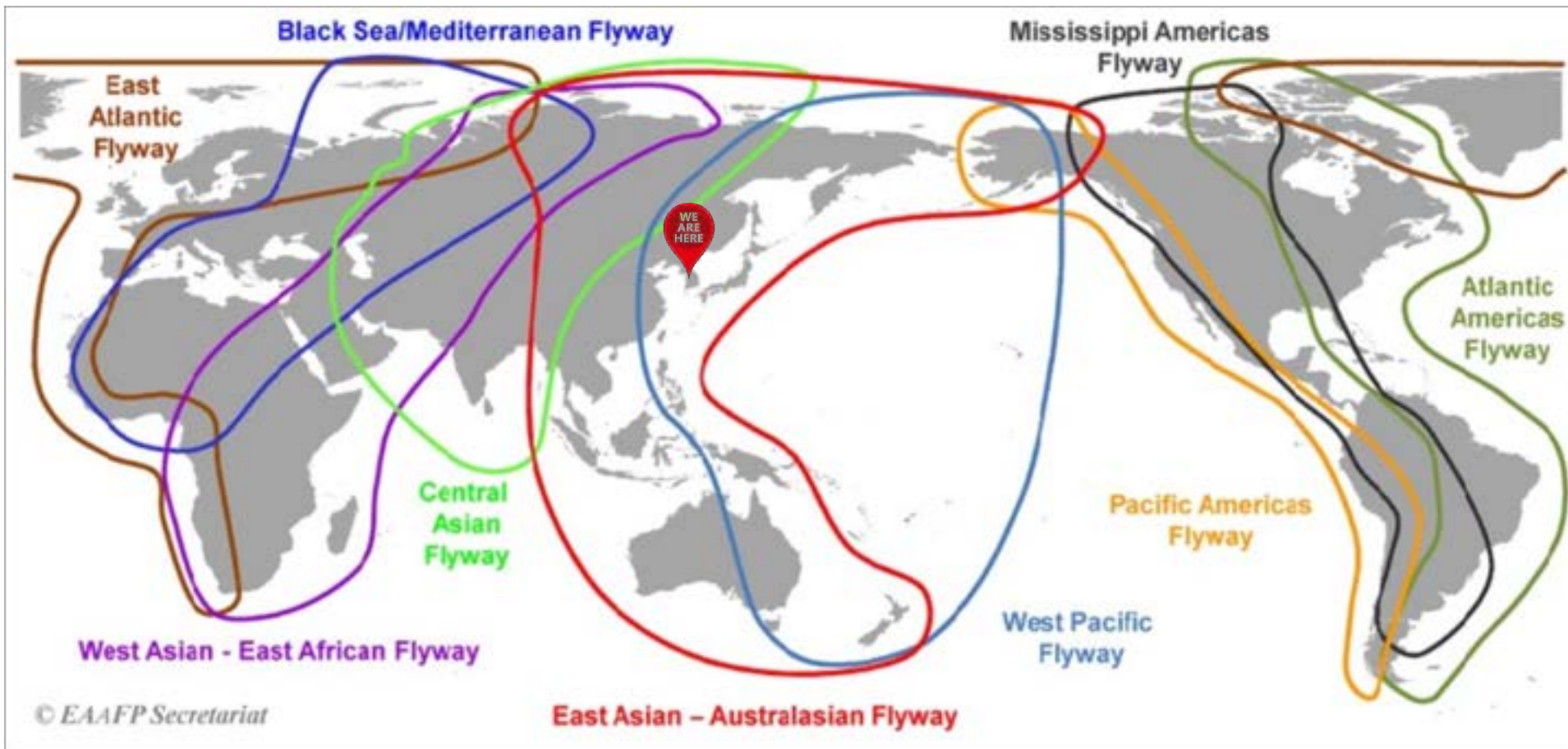


1. Sweden • Stockholm Environment Institute	4. Russia • Russian Academy of Sciences Global Institute of Nature Management • RI Russian Research Institute for Nature Protection	10. Thailand • Asian Institute of Technology	15. United States • Stanford Natural Capital Project • International Arctic Research Center
2. United Kingdom • London Maritime Arbitrators Association	7. India • The Energy and Resources Institute	11. Laos • Lao Academy of Social and Economic Sciences	16. Republic of Guatemala • Ministry of Environment and Natural Resources
3. Germany • Erlangen Institute of Ecological Urban and Regional Development	8. China • China-ASEAN Environmental Cooperation Center • Chinese Academy for Environmental Planning	12. Vietnam • Vietnam Academy of Social Sciences • Institute of Strategy and Policy on Natural Resources and Environment	17. Republic of Paraguay • Ministry of Environment and Sustainable Development
4. Republic of Tunisia • Tunis International Centre for Environmental Technologies	9. Japan • Institute for Global Environmental Strategies	13. Cambodia • Royal Academy of Cambodia	
5. Ethiopia • Ethiopian Institute of Water Resources		14. Australia • National Climate Change Adaptation Research Facility	

About Me

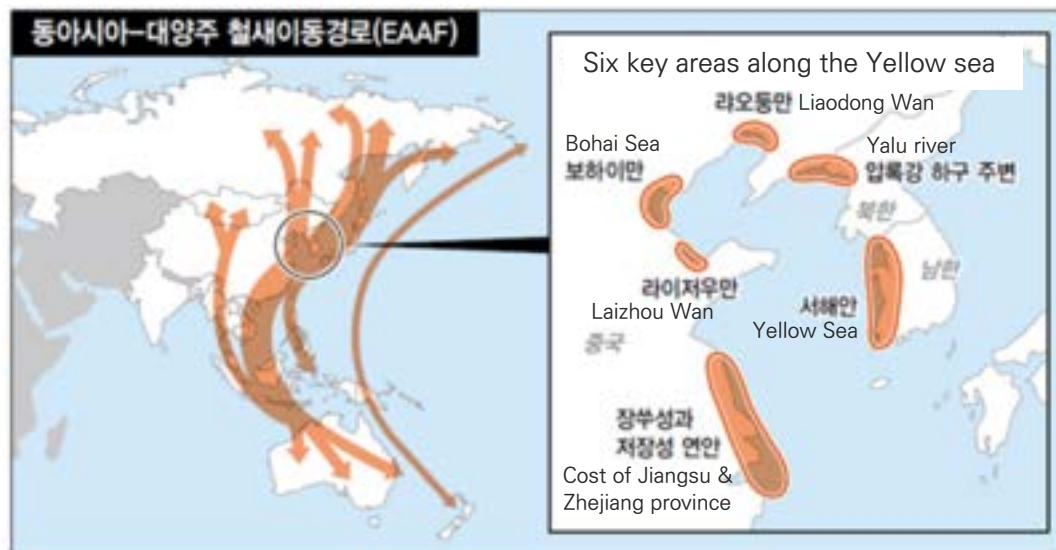
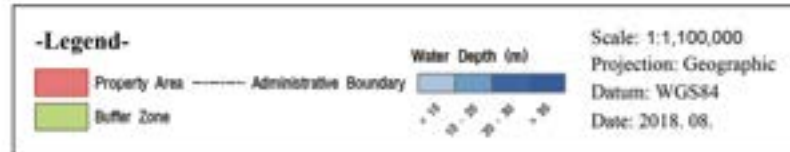
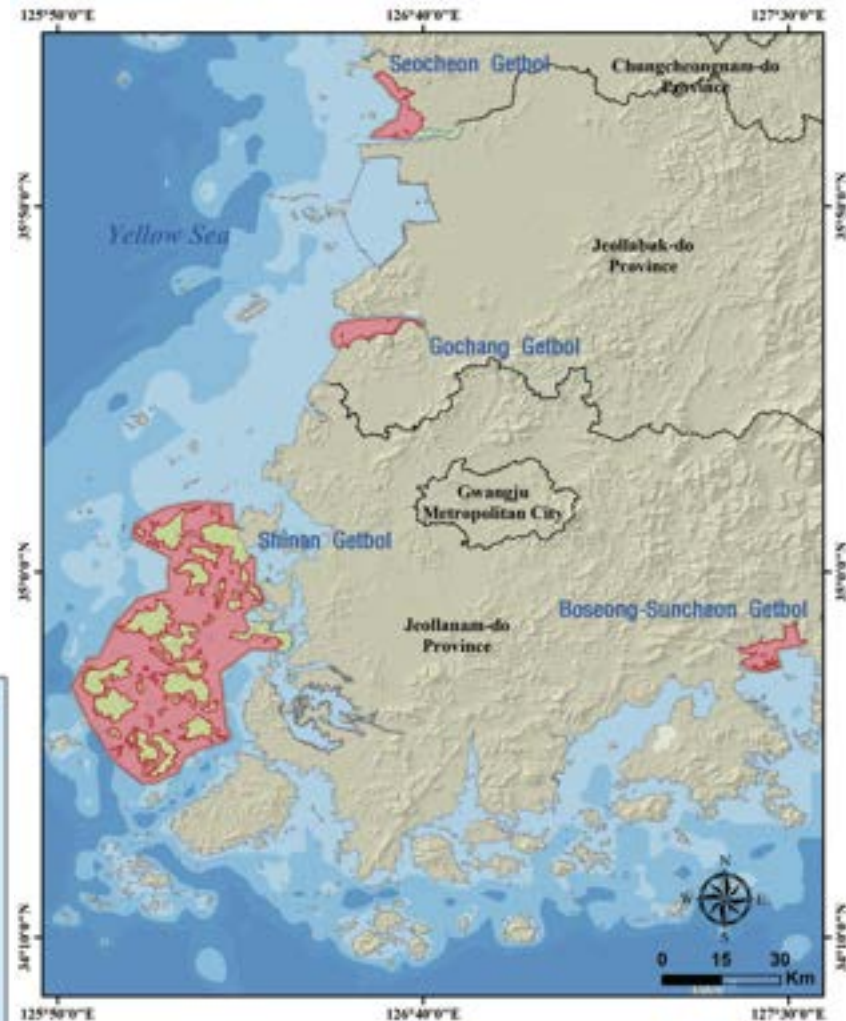


Flyways in Earth



Value of the Korean Peninsula as a habitat for migratory birds

- Major habitats
 - Wintering sites for waterbirds, Raptors, etc.
 - Stopover site for shorebirds, etc.
 - Breeding site for Passerines, waterbirds, etc.
 - Birds with various life-history use the Korean Peninsula throughout the year
- Korea's mudflats (Getbol) as UNESCO World Heritage sites for endangered migratory birds



Urgency of promoting Offshore Wind Power for carbon neutrality

- Joint announcement by relative Ministries of Offshore Wind Power Plan (2020.7.16)
 - Establish information map for the wind power by integrating and analyzing wind condition, regulatory information, and fishing boat activity, etc.
 - Developing ‘consideration zone’ for Offshore Wind Power in ROK



Current status of Offshore Wind Power installation and road map for implementation

자료: 관계부처 합동(2020.7.17), p.3, 산업통상자원부(2019.8.23.) 보도자료, pp.1-4 바탕으로 저자 작성.

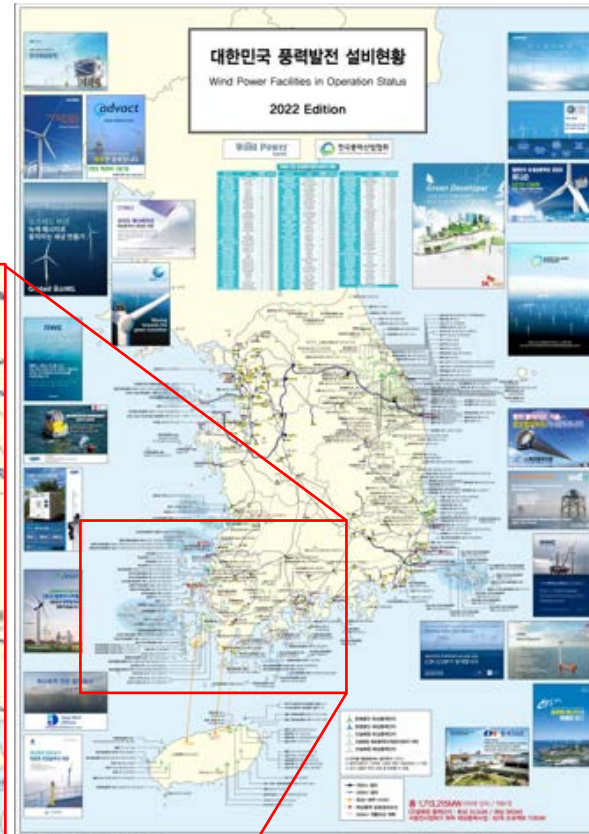
Major wind power facilities in ROK

- On-shore Wind Power: over 115 sites
- Off-shore Wind Power
 - Operating: 5 sites
 - Planning: over 80 sites



Major wind power facilities in ROK

- On-shore Wind Power: over 115 sites
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Roadmap for long-term monitoring seabirds and waterbirds

- (Suggested) National offshore boat and/or aerial surveys in ROK
 - Extension of the Winter Waterbird Census and Ecological Survey on Specific Islands, etc.
 - But there are limitation of time, budget and experts, etc.
- (Working on) Monitoring Endangered species and dominants by using GPS trackers
 - Monitoring at least over 2 years (two breeding seasons and two non-breeding seasons)



Eurasian Oystercatcher / 멸종위기 / Red List NT



Far Eastern Curlew / 멸종위기 / Red List EN



Eurasian Curlew / Red List NT



Bar-tailed Godwit / Red List NT



Peregrine Falcon / 멸종위기 / Red List LC



Black-tailed Gulls / Red List LC

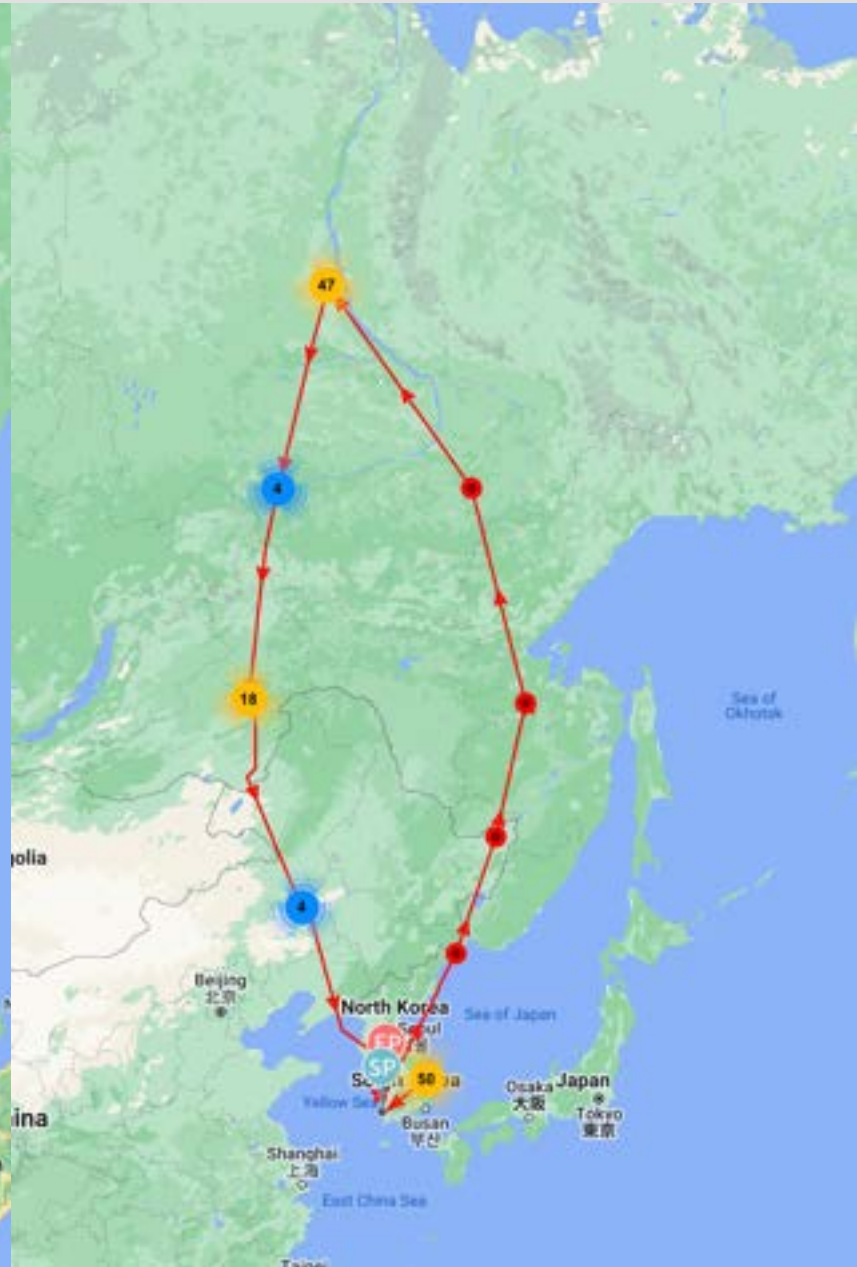
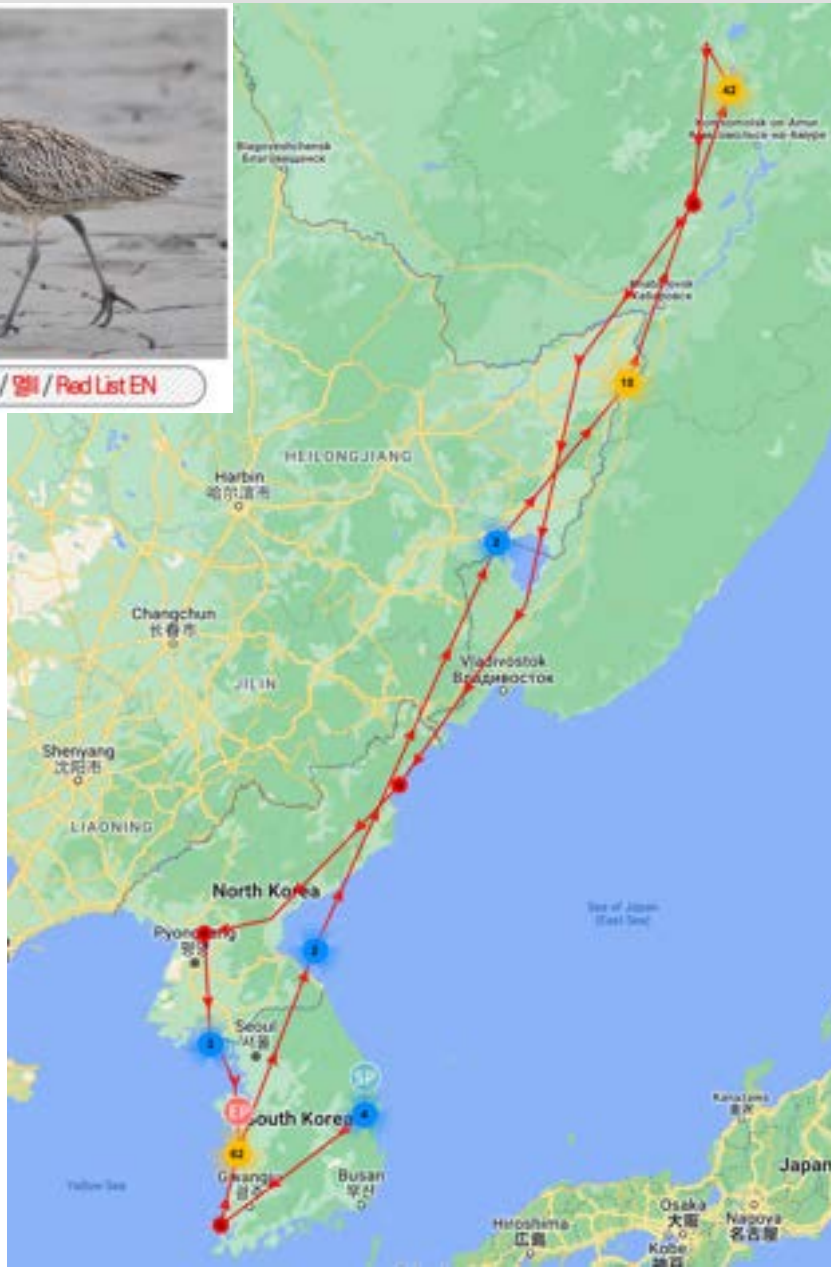


More
birds

Sample #1) Far Eastern Curlew (*Numenius madagascariensis*)



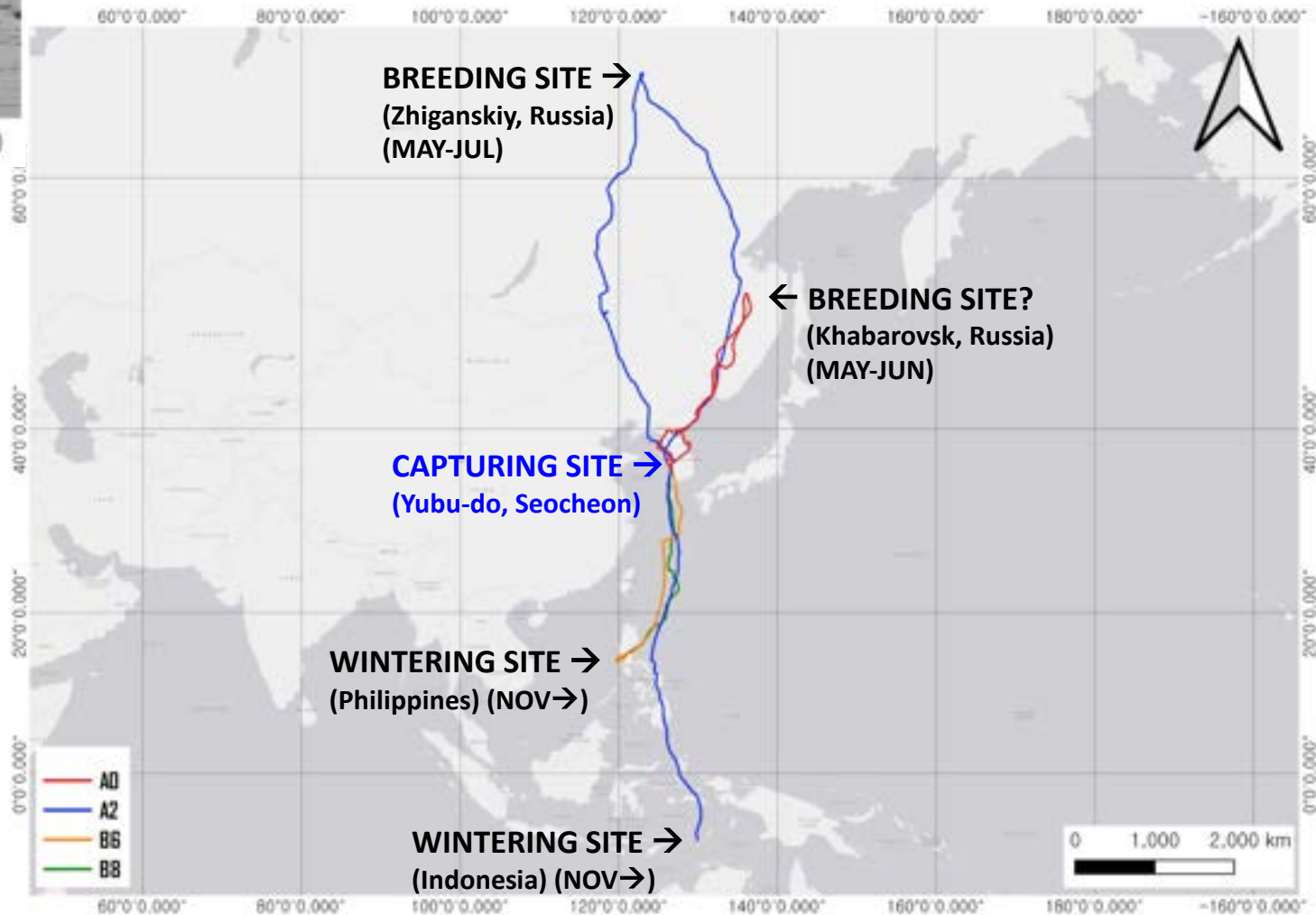
Far Eastern Curlew / 東方濱鷸 / Red List EN



Sample #1) Far Eastern Curlew (*Numenius madagascariensis*) (cont.)

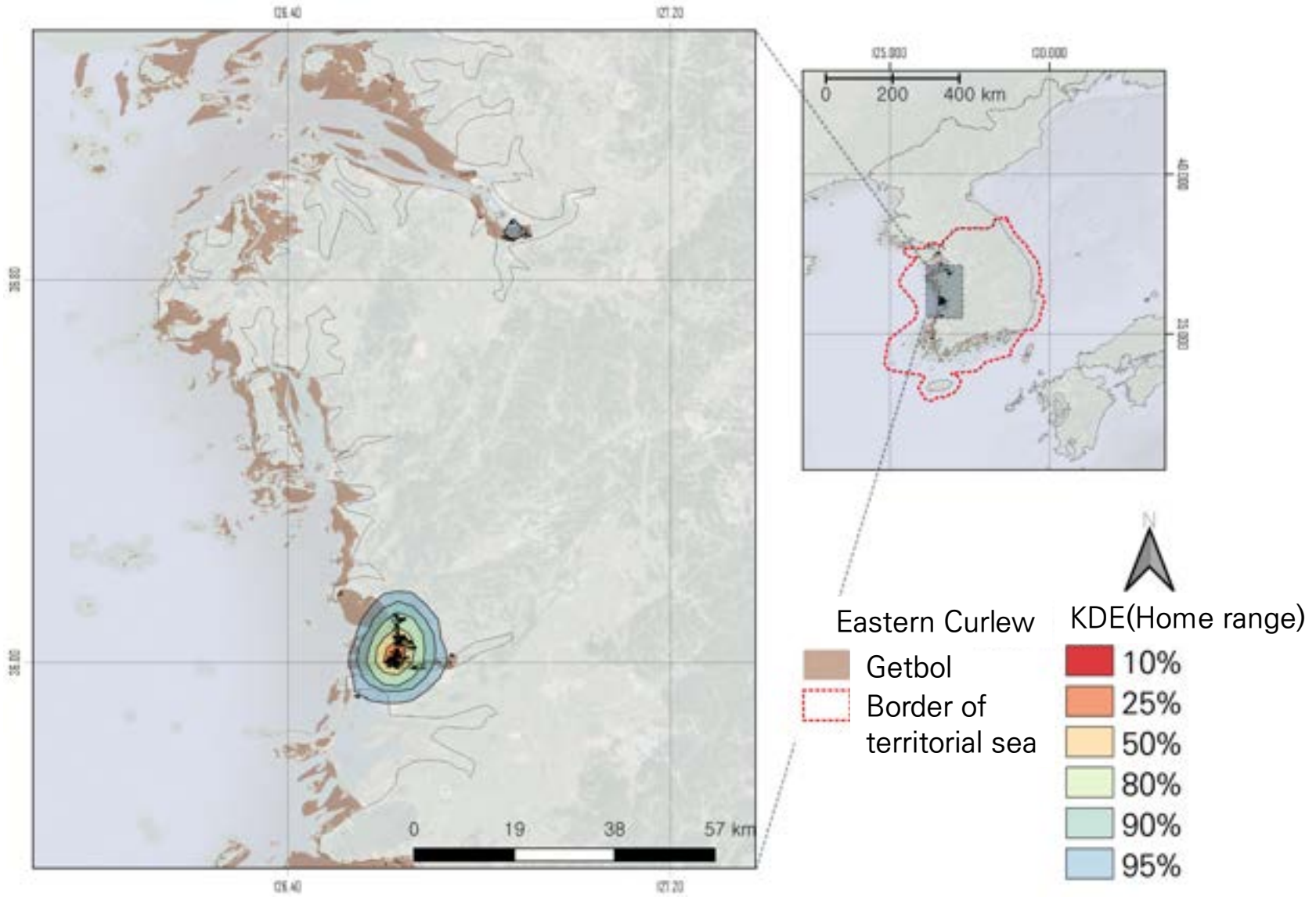


Far Eastern Curlew / 붉은다리 / Red List EN



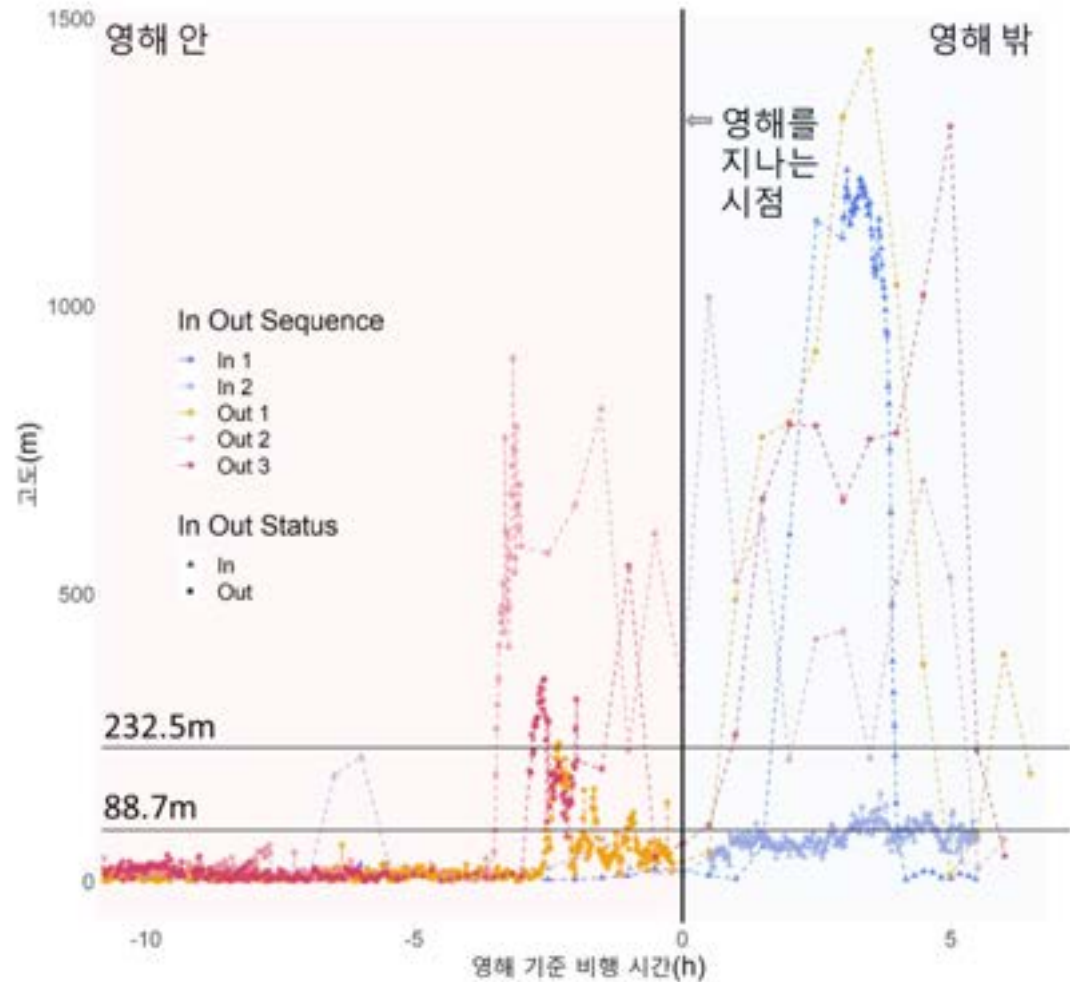
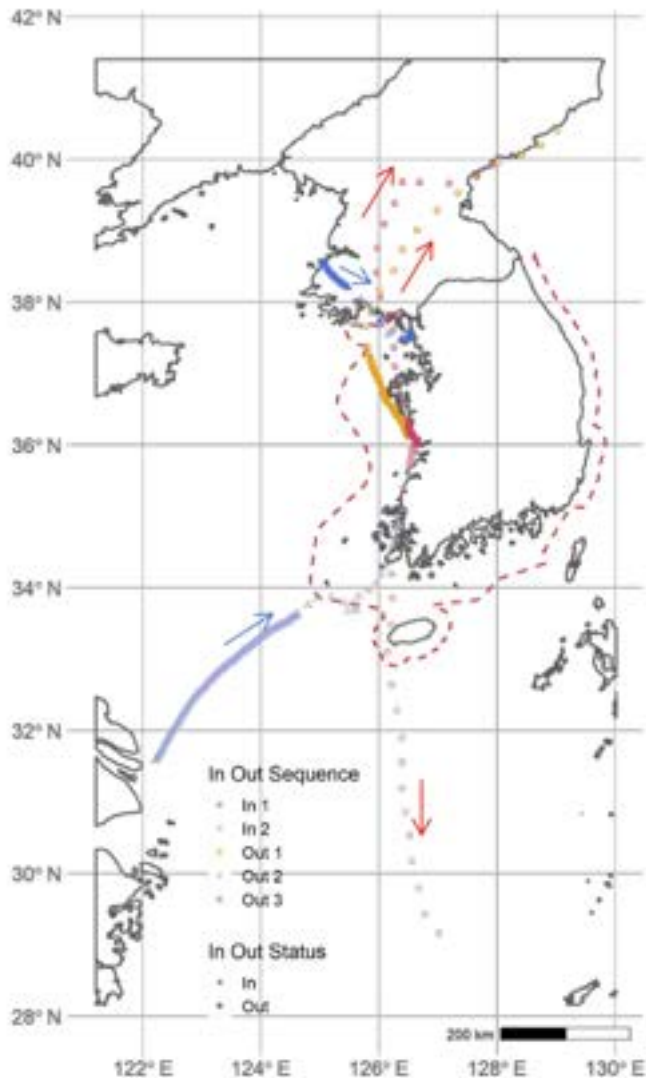
Sample #1) Far Eastern Curlew (*Numenius madagascariensis*) (cont.)

○ Home range during stopover period



Sample #1) Far Eastern Curlew (*Numenius madagascariensis*) (cont.)

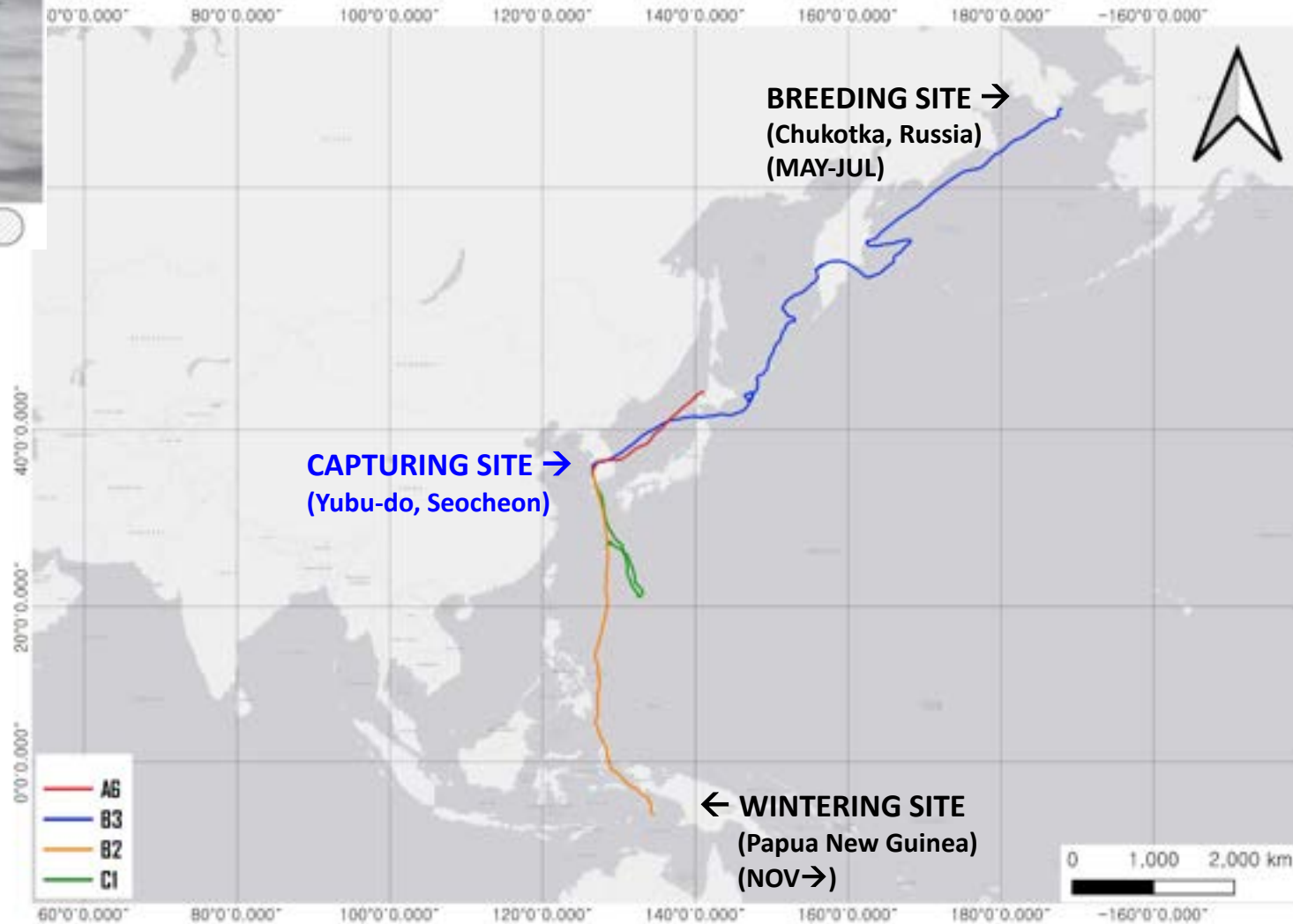
○ Altitude for migration



Sample #2) Bar-tailed Godwit (*Limosa lapponica*)

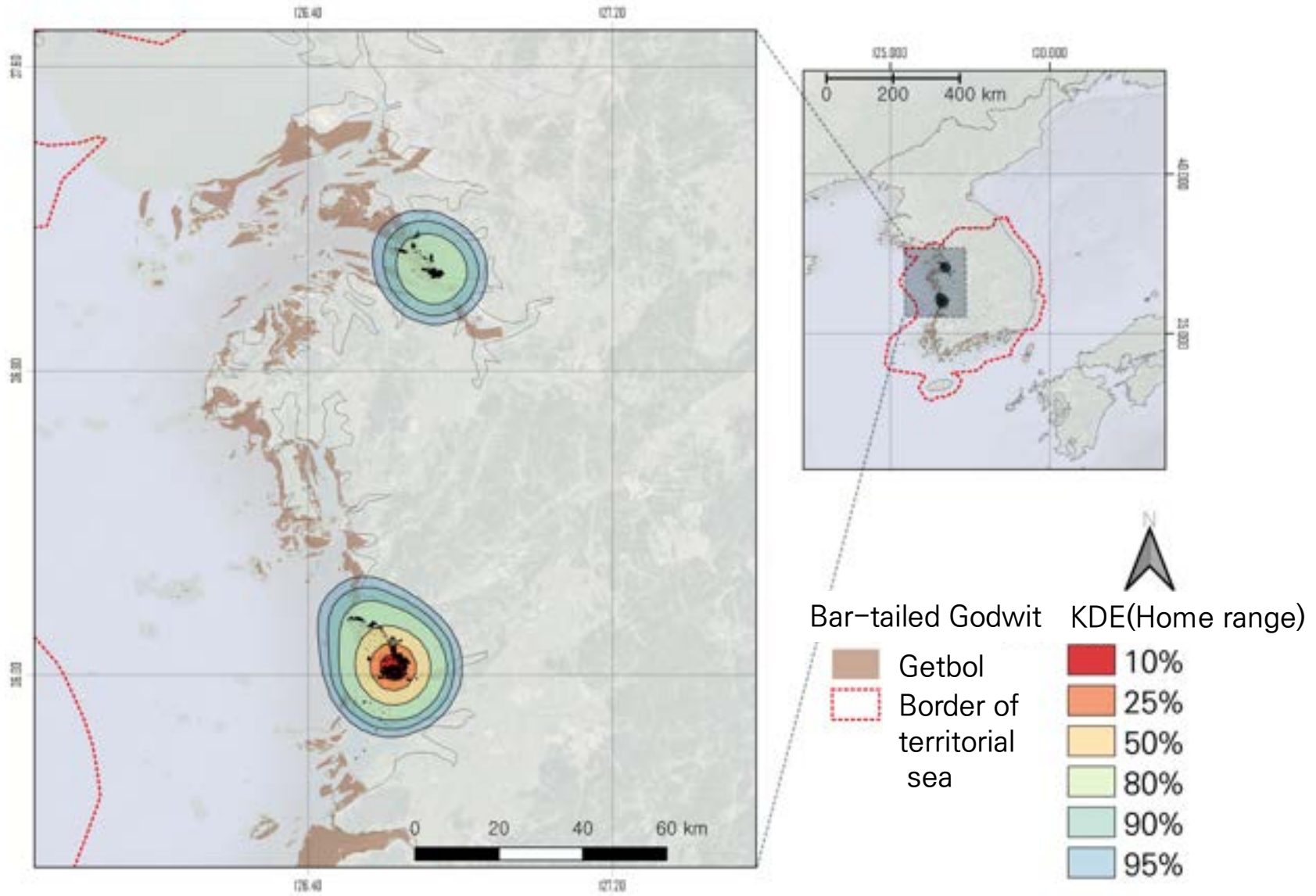


Bar-tailed Godwit / Red List NT



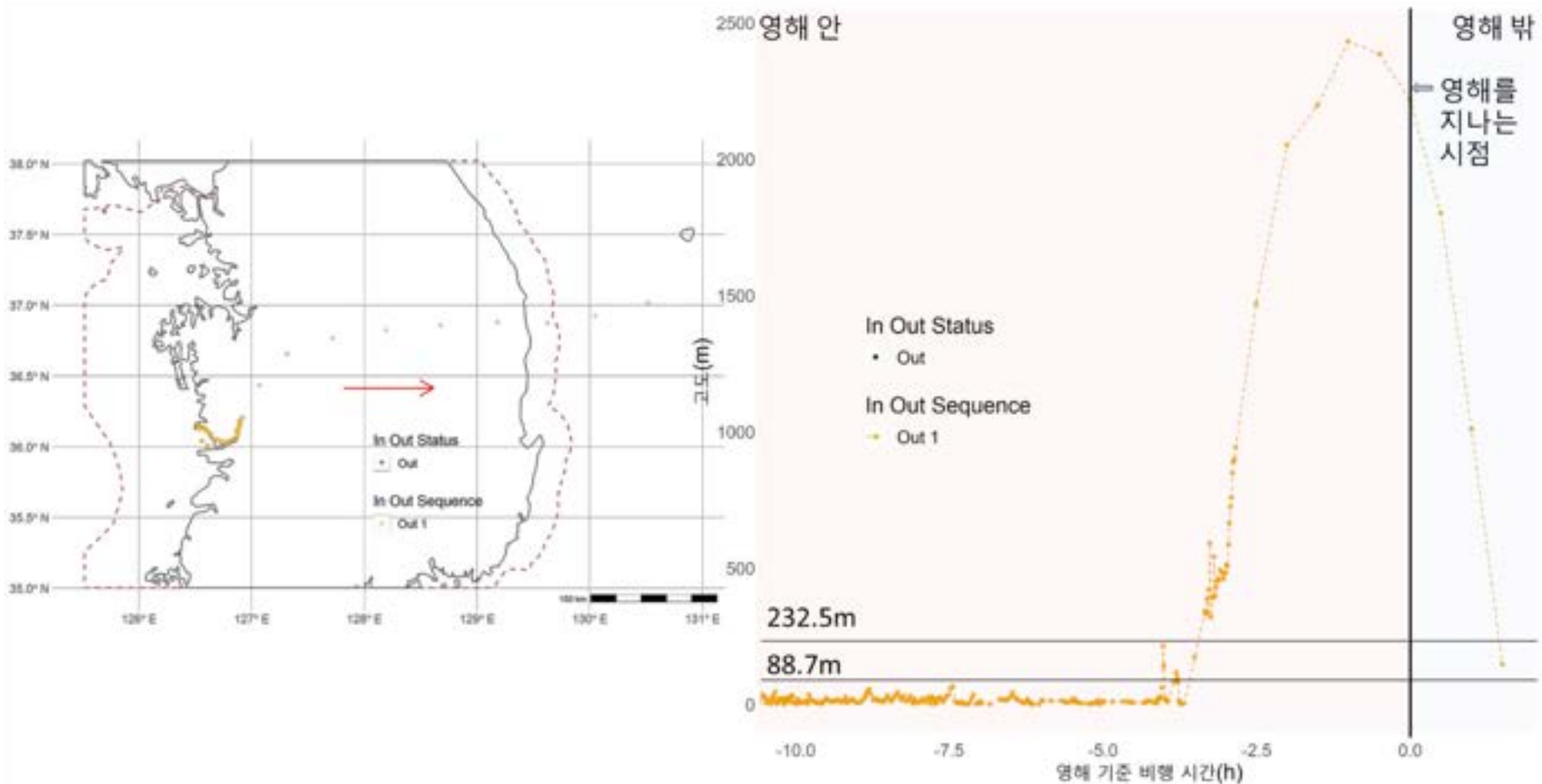
Sample #2) Bar-tailed Godwit (*Limosa lapponica*) (Cont.)

○ Home range during stopover period



Sample #2) Bar-tailed Godwit (*Limosa lapponica*) (Cont.)

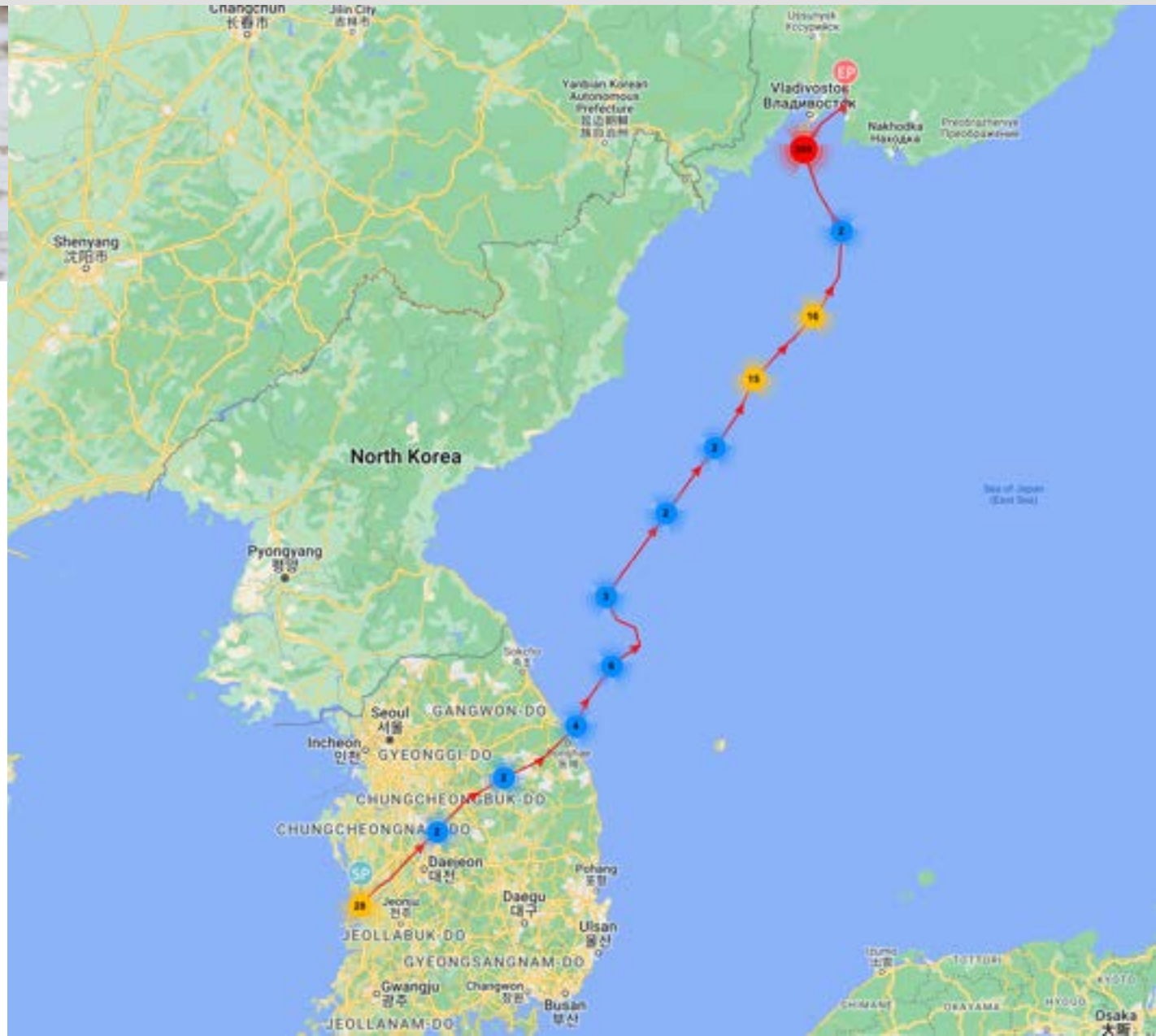
○ Altitude for migration



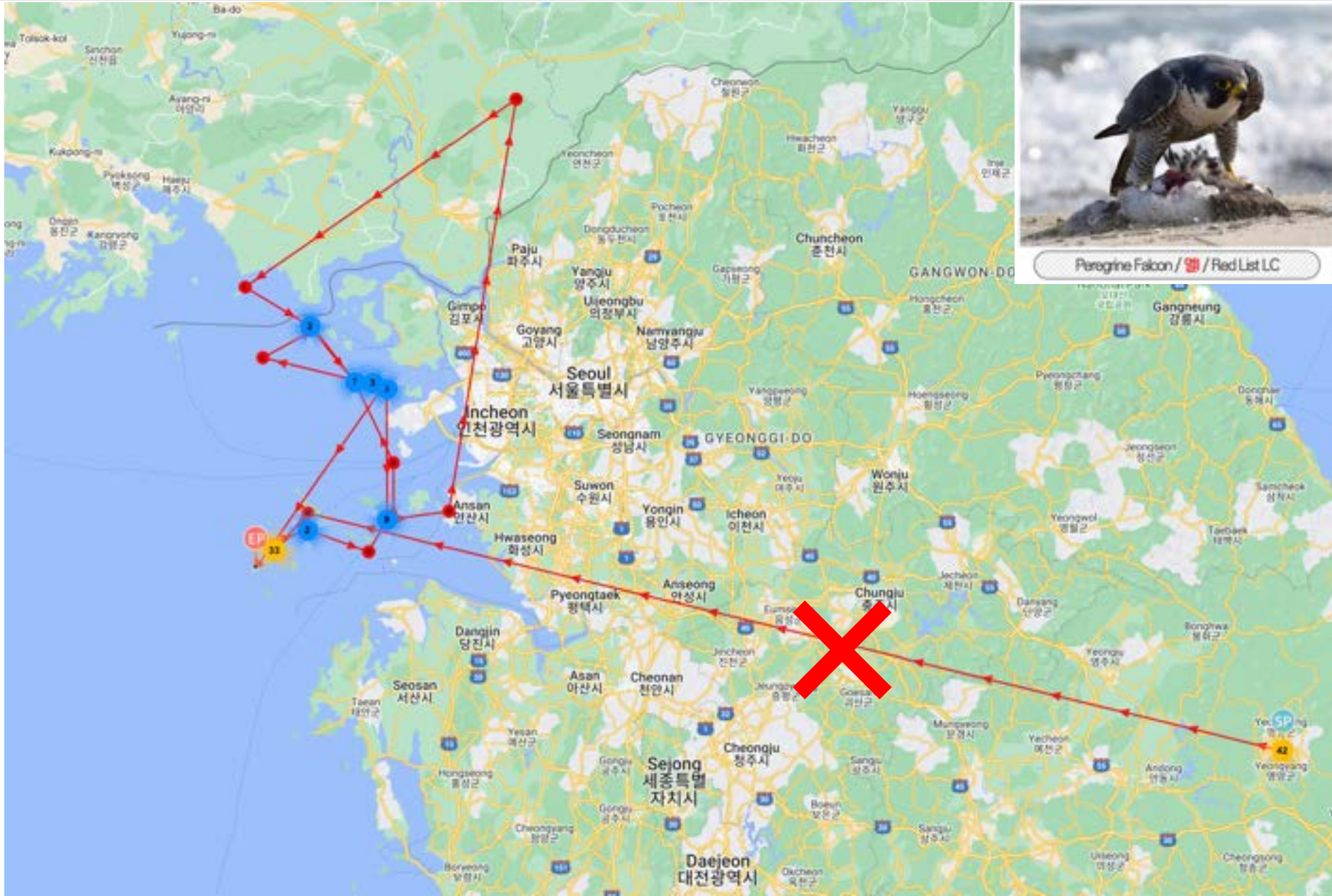
Sample #3) Eurasian whimbrel (*Numenius phaeopus*)



Eurasian whimbrel



Sample #4) Peregrine Falcon (*Falco peregrinus*)



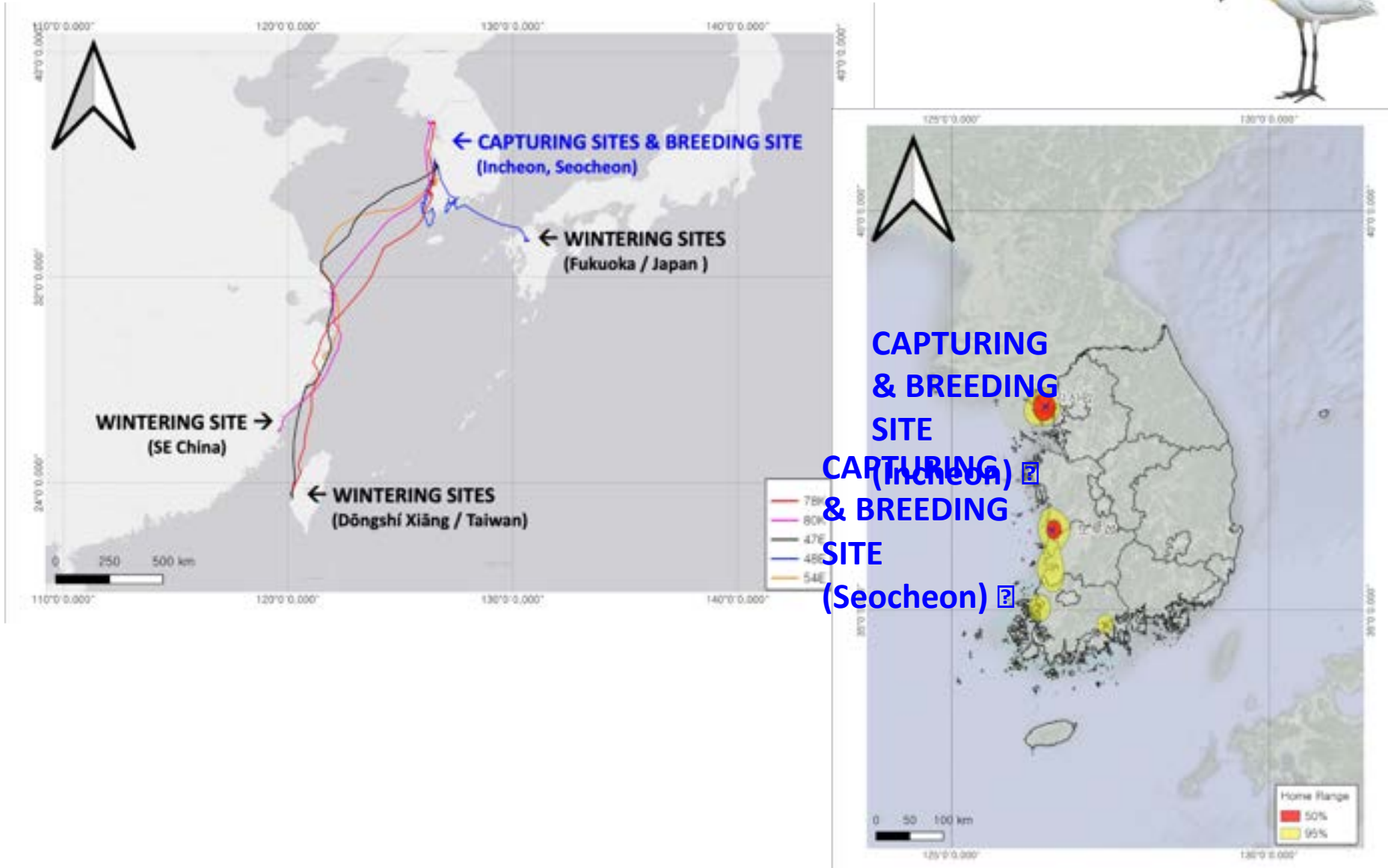
Sample #5) Chinese Egret (*Egretta eulophotes*)

○ Seasonal Migration of *Chinese Egret Juvenile* (*Egretta eulophotes*)



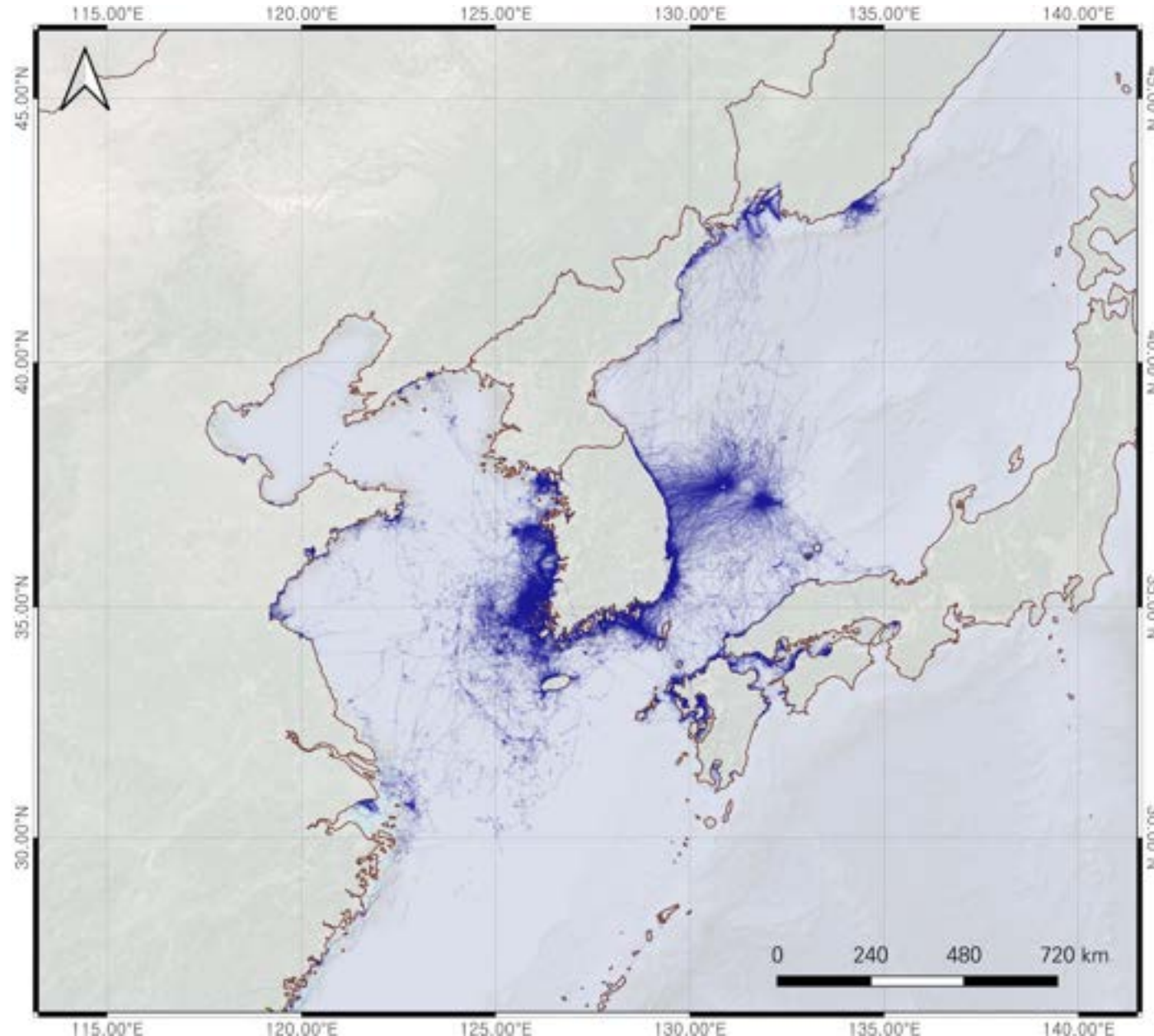
Sample #6) Black-faced Spoonbill (*Platalea minor*)

○ Seasonal Migration of Black-faced Spoonbill Juvenile (*Platalea minor*)



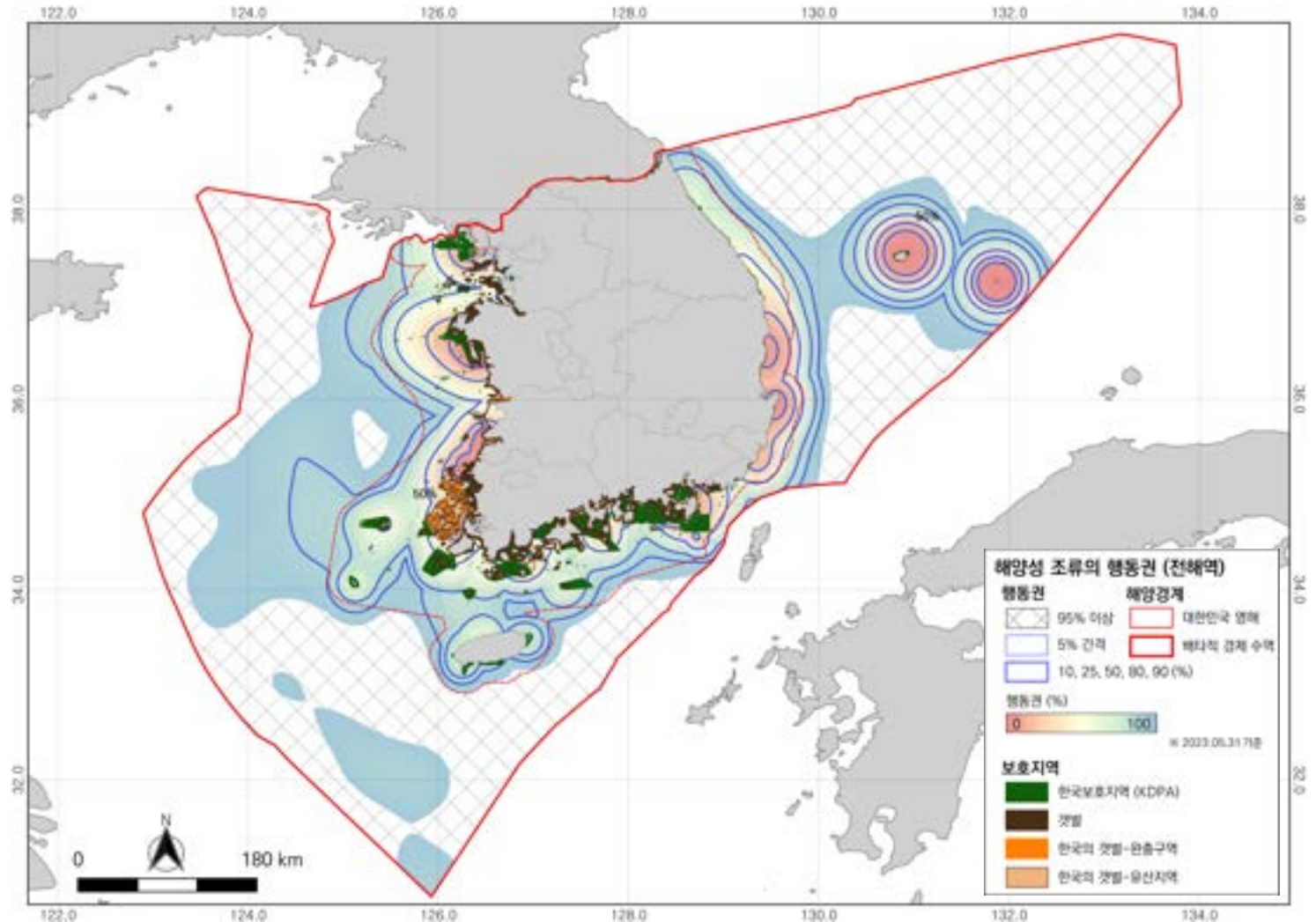
Black-tailed Gulls (*Larus crassirostris*) since 2021

- Study sites
 - East: 3 sites
 - South: 1 site
 - West: 11 sites
 - ~ 300 individuals



Home range in Black-tailed Gulls

- Ministry of Environment and KEI derives important seabirds habitats based on long-term GPS-tracking study



Suggested conservation strategies

- 3-way measures to expand renewable energy and mitigate biodiversity impacts
 - (Conservation) Preservation of the original form of a space with excellent conservation value in terms of biodiversity
 - (Mitigation) Reduction measures to minimize the impact on ecosystems caused by the installation and operation of renewable energy
 - (Compensation) Compensation plan for the target biological image if efforts beyond reduction of inevitable conditions are required



잉글랜드 서해 포리스트포드 해안에 만들어진 '새가까갈매기 호텔'

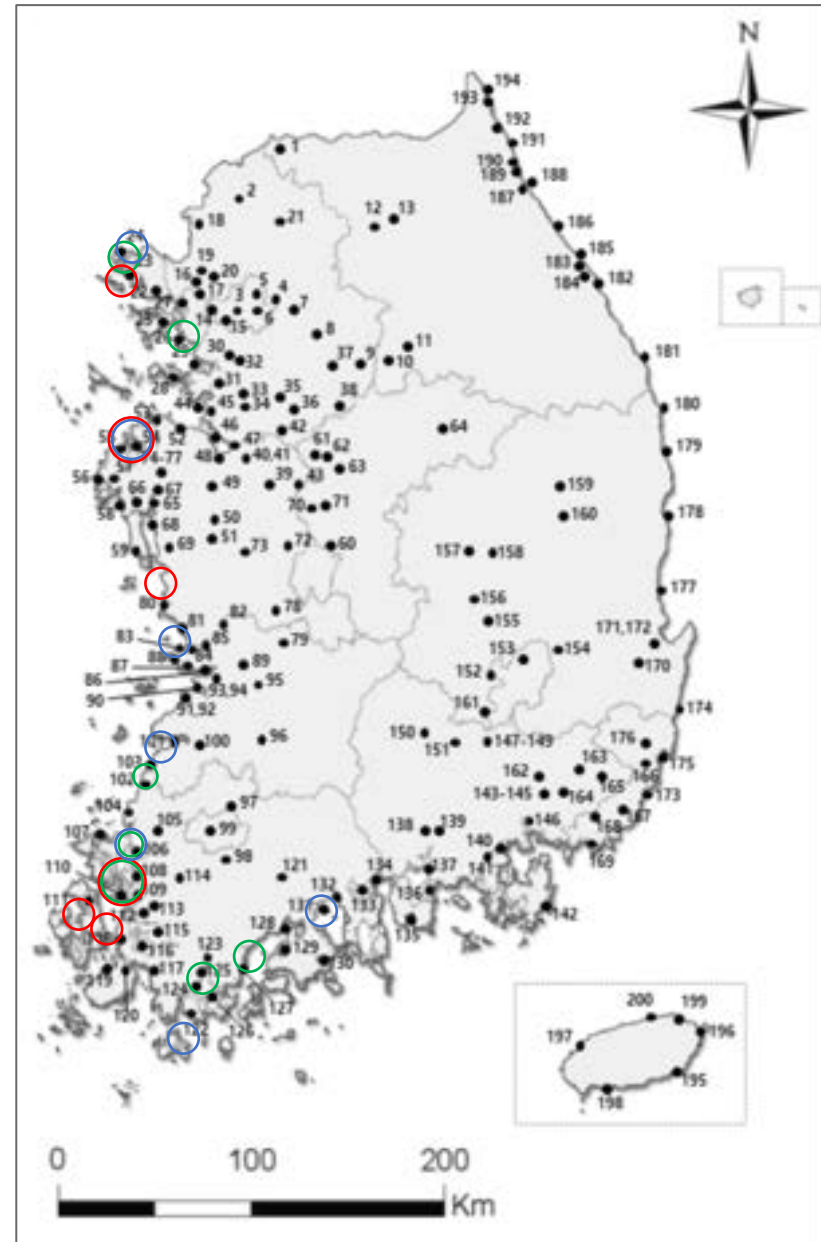
On-going working

○ Mid-term plan for restoration of the Tidal Flat ecosystem

– Three main types of restoration

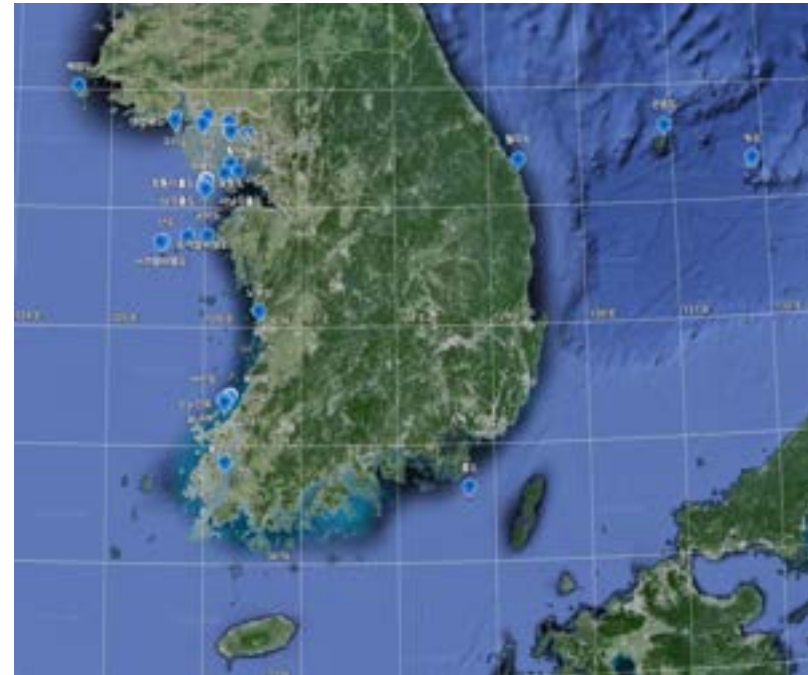
- **(Tidal Flat regeneration type)** Restoration of abandoned salt farms or fish farms disconnected from tidal flats by embankments and etc. Incheon Ganghwa choji-ri, Seosan Gopa Isalnd, Seocheon Yubu Island, Tae-an Nae-ri, Gochang Gojeon-ri, Muan Yuwol-ri, Wando Soan Island, Suncheon Guryeong-ri, Masan-ri, etc.
- **(Seawater flowing type A)** Restoration of the area where a single tidal flat is cut off by an open road or bridge
 - ※ Ongjin Si-Mo Island, Seosan Ongdo-ri, Boryeong Muchangpo, Shinan Suqi Island, Shinan Jonpo-ri, Shinan Maehwa Island and etc.
- **(Seawater flowing type B)** Restoration of areas where seawater flowing in tidal flats is hindered by structures such as abandoned seawalls
 - ※ Incheon Ganghwa Seondu-ri, Gochang Jaryong-ri, Shinan Goyi Island, Muan Seongnae-ri, Gangjin Beoljeong-ri, Boseong Jeonyil-ri and etc.

– Planned restoration areas are overlapped with major migratory bird habitats in ROK



Future challenges

- Major countries such as UK and US are laying the foundation for impact assessment system focused on breeding sites
 - It is being changed from the existing physical collision-centered influence to the impact on breeding population fluctuations caused by offshore wind power generation operations
 - (**Evaluation Method**) By predicting and evaluating population fluctuations before and after the project through Population Viability Analysis (PVA), the appropriate size and location will be evaluated, and relevant data will be used for follow-up monitoring and compensation measures



Thanks for your attention
