



화성습지의 지속가능한 개발계획



© Jung Hanchul, Hwaseong KFEM

Dr Nial Moores, Birds Korea, October 26th 2022



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Maehyangri



Save International / UC Berkeley with Birds Korea and KFEM



**Protect key areas, species and local communities; Restore degraded areas;
Create new jobs and opportunities for ecotourism and cultural tourism**



1.1 Essential Context

“Current negative trends in biodiversity loss and ecosystem degradation will undermine progress towards 80% of the assessed targets of the SDGs related to poverty, hunger, health, water, cities, climate, oceans and land.”
UN CEB (December 2020)

“Making peace with nature is the defining task of the 21st century... restoring forests and other ecosystems is the single largest nature-based opportunity for climate mitigation” UN Secretary General (Dec 2020)

Conservation of birds and their habitats supports the SDGs; now must include large-scale ecosystem restoration





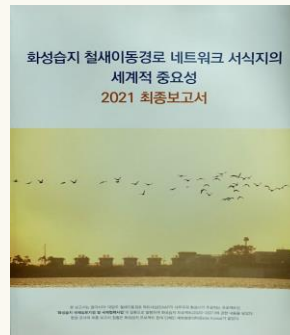
1.2 Essential Context

Today's advice is based on:

- >30 years of bird and habitat research in East Asia
- Masters degree in ecological planning from Kyushu University; PhD in conservation of Avian Biodiversity from University of Newcastle, Australia
- Work for Birds Korea and for IUCN Species Survival Commission as member of Threatened Waterfowl Specialist Group
- Experience of work in the Hwaseong Wetlands (first in 1998; in 2020-2021 funded by Hwaseong under contract to the EAAF Partnership)
- Authorship of several publications, including *Conservation* 2022, 2, 526–549, and extensive collaboration



2020



2021



2022



1.3 Existing Conservation Obligations

ROK Fourth National Biodiversity Strategy (2019–2023)

Vision

“To promote the sustainable use of the environment of the ROK by conserving its rich biodiversity”

Issues include:

- “Central and local governments should reflect biodiversity in their policies to facilitate its mainstreaming in government operations”(Corresponding to Aichi Target 2)
- “Continued decline in biodiversity
 - Habitat loss and fragmentation ...expected to cause a continued loss of biodiversity...
 - Ecosystem degradation will accelerate ...Areas of forests, farmland and mud flats have decreased respectively by 2.1%, 15.9% and 20.4% over the last two decades (ME 2014).
 - Protected areas for conservation of biodiversity do not meet the internationally-required levels, including that of the CBD.”



1.3 Existing Conservation Obligations

ROK Fourth National Biodiversity Strategy (2019–2023)

Principle 1

“Ensure the conservation of quality ecosystems that cannot be replaced or restored (avoid their use in development areas)” (p. 39)

Principle 2

Replace or restore to an equivalent or improved condition where damage is unavoidable (using inside/surrounding areas of the project site, different or alternative sites)

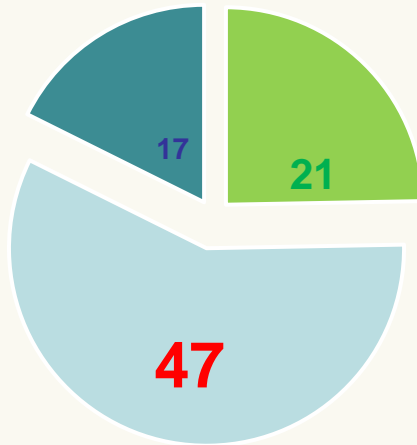
Principle 3

Reject project permit requests or impose restoration fees where restoration or alternative measures are not possible

KEY QUESTION: How to identify “quality ecosystems that cannot be replaced”?



1.4 Korean Biodiversity: Globally Threatened and Near Threatened Bird Species by Main Habitat



■ Forest & Grassland ■ Wetlands ■ Marine Habitats

599 bird species:

Forest and Grassland: 3 **EN**, 9 **VU**, 9 **NT**

Wetlands: 5 **CR**, 7 **EN**, 15 **VU**, 20 **NT**

Marine Habitats: 1 **CR**, 7 **VU**, 9 **NT**

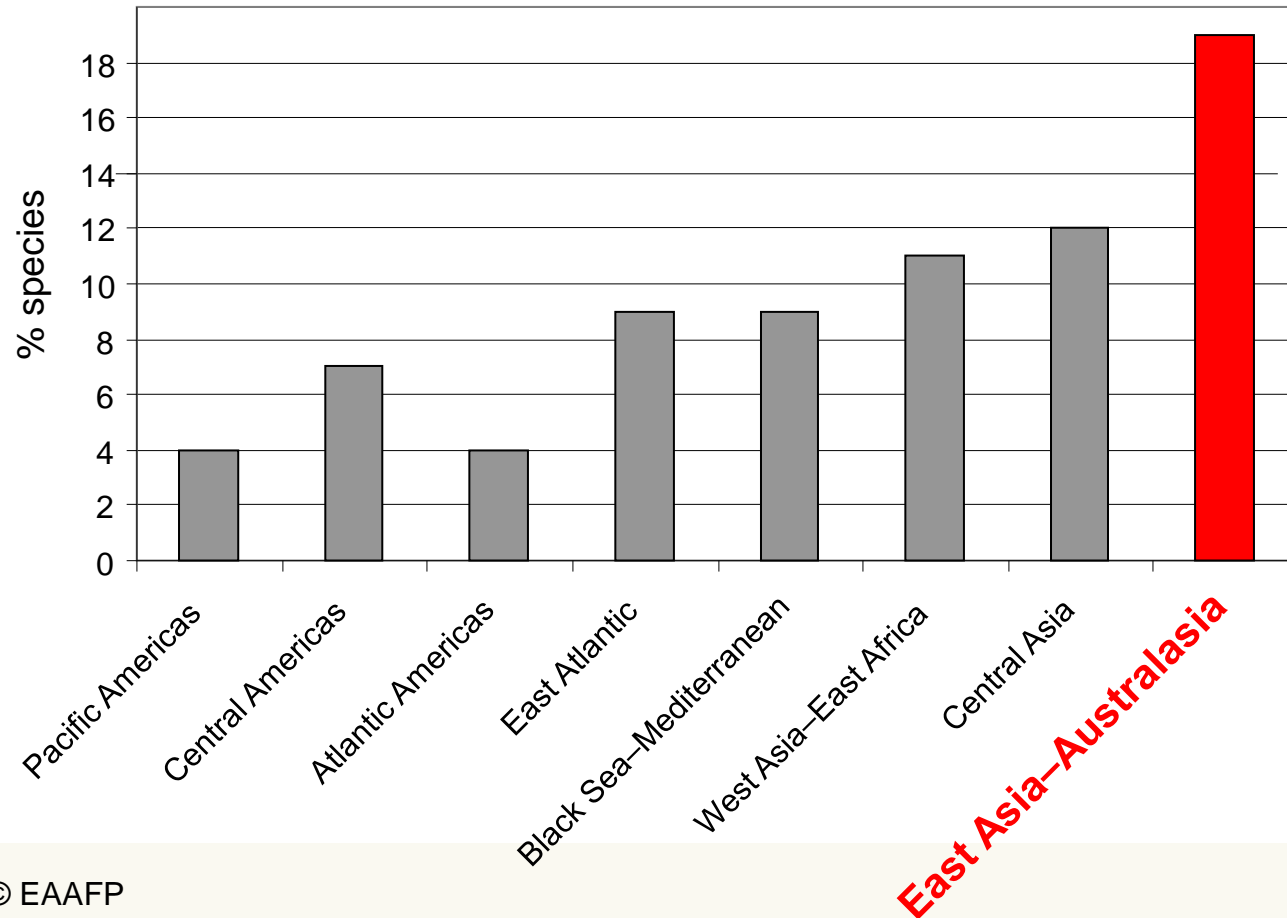
Birds Korea analysis, October 2022

Korean Wetlands are vital for biodiversity





1.5 Globally Threatened and Near Threatened Waterbird Species by Flyway



© EAAFP

Wetlands and Waterbirds are clear national and regional conservation priorities



1.6 Existing Conservation Obligations

Ramsar Convention (1971)

“wetlands constitute a resource of great economic, cultural, scientific, and recreational value, the loss of which would be irreparable;”

Article 3

“The Contracting Parties shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory.”

Article 4

“Each Contracting Party shall promote the conservation of wetlands and waterfowl by establishing nature reserves on wetlands, whether they are included in the List or not.”

*** Convention uses scientifically-agreed criteria for identifying internationally important wetlands**



1.7 Existing Conservation Obligations

Ramsar criteria for identifying Wetlands of International Importance

A wetland should be considered internationally important if it:

Criterion 2: supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

Criterion 5: regularly supports 20,000 or more waterbirds.

Criterion 6: regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.



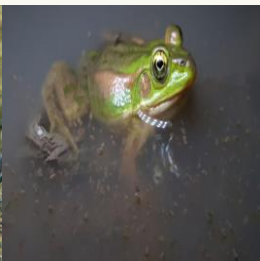


2.1 The Hwaseong Wetlands

A quality ecosystem that cannot be replaced

Research Results (2020-2021)

- More than 150,000 waterbirds annually (Exceeds Ramsar Criterion 5)
- Concentrations of 1% or more of 25 populations of waterbird (Meets Ramsar Criterion 6)
- 16 globally threatened wetland species (Meets Ramsar Criterion 2)
- Internationally important habitats include tidal flats; open waters of the Reclamation Lake; shallow freshwater wetlands; rice-fields
- Most waterbird species use more than one habitat, for feeding and / or roosting



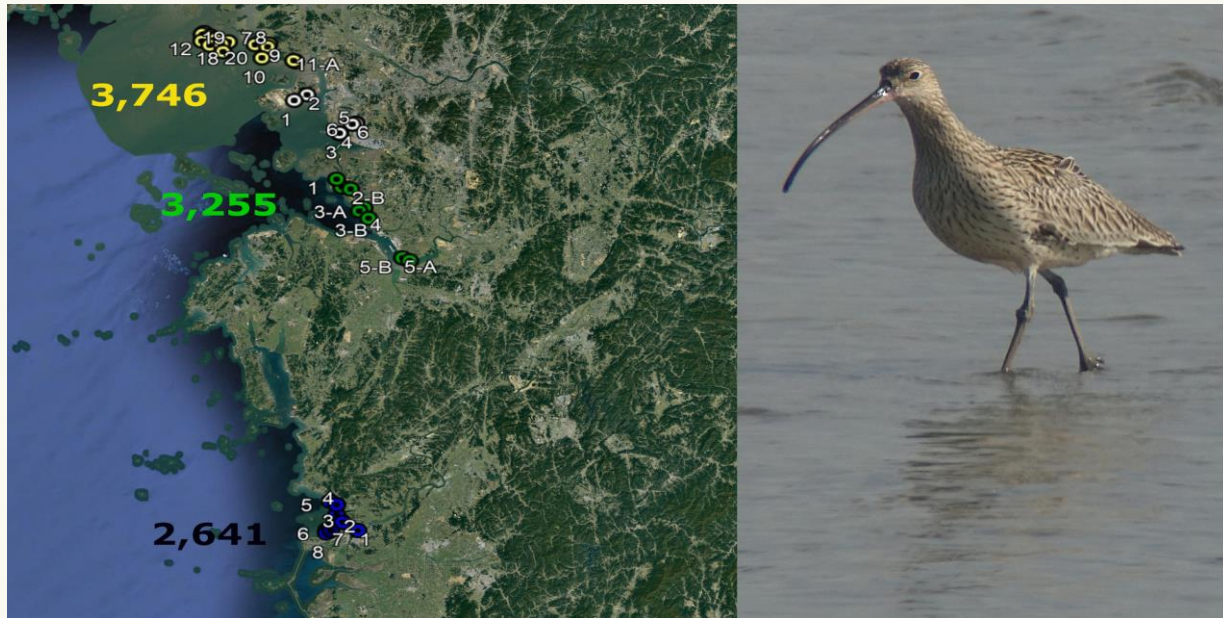
Conclusion: The Hwaseong Wetlands are Internationally Important; and form one of the most important wetlands in Korea and E. Asia for biodiversity



2.2 The Hwaseong Wetlands

A quality ecosystem that cannot be replaced

E.g., 알락꼬리마도요 *Numenius madagascariensis* **EN**



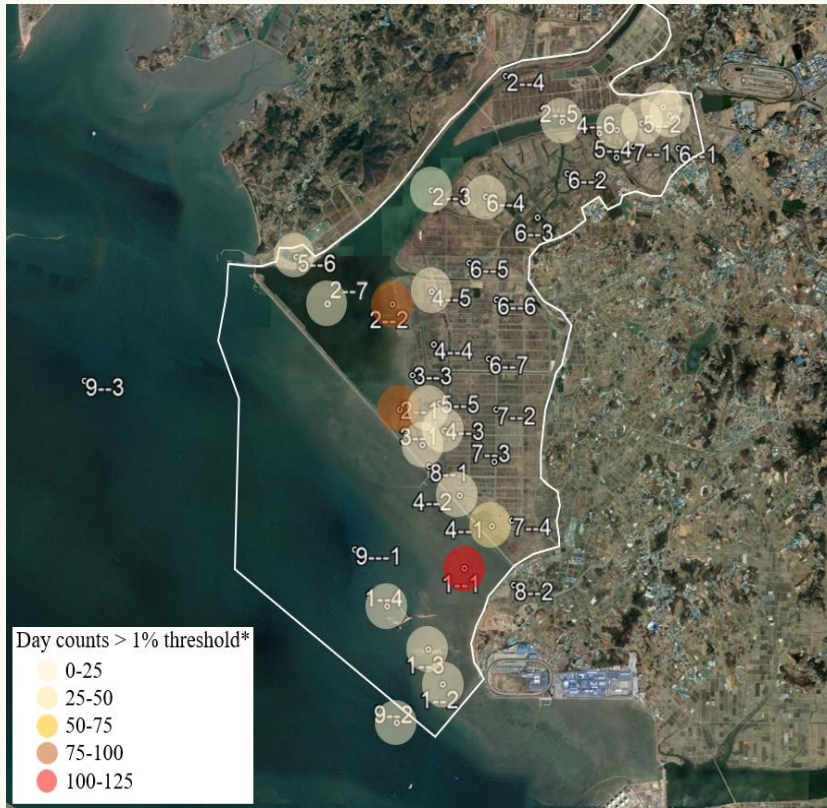
- World Population Estimate: 35,000 (Wetlands International 2022)
- ROK National Peak Count (July 2021): 9,642
- Hwaseong Wetlands: 28% of national total / almost 8% of World Total

Conclusion: Hwaseong Wetlands are a quality ecosystem which cannot be replaced

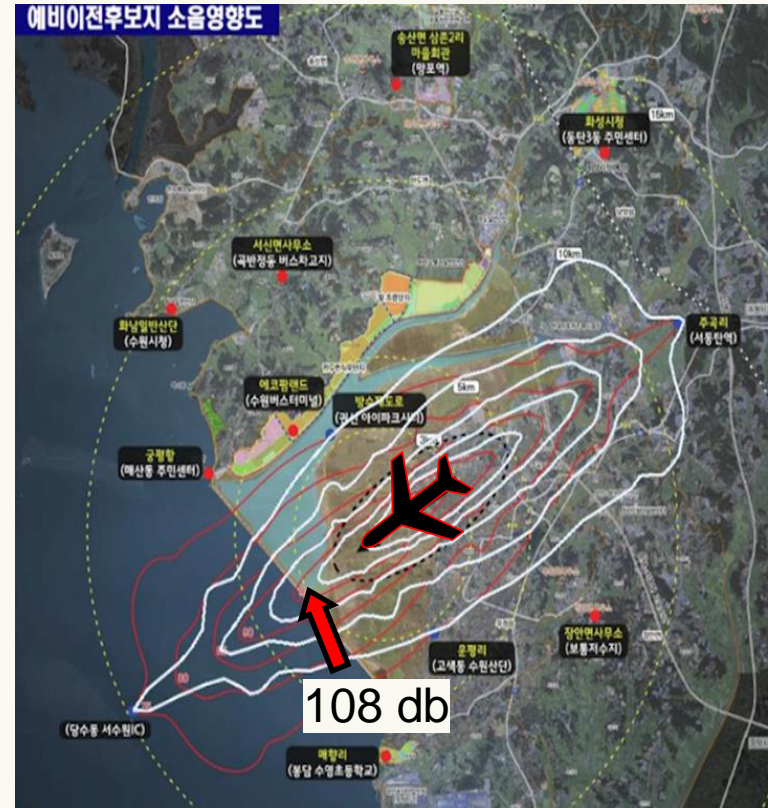


3.1 Imminent Threats

Internationally Important Concentrations, Noise & Flight Lanes



Moores et al. (2022): # of species / days (excluding feeding geese), Stronger the colour the more important concentrations

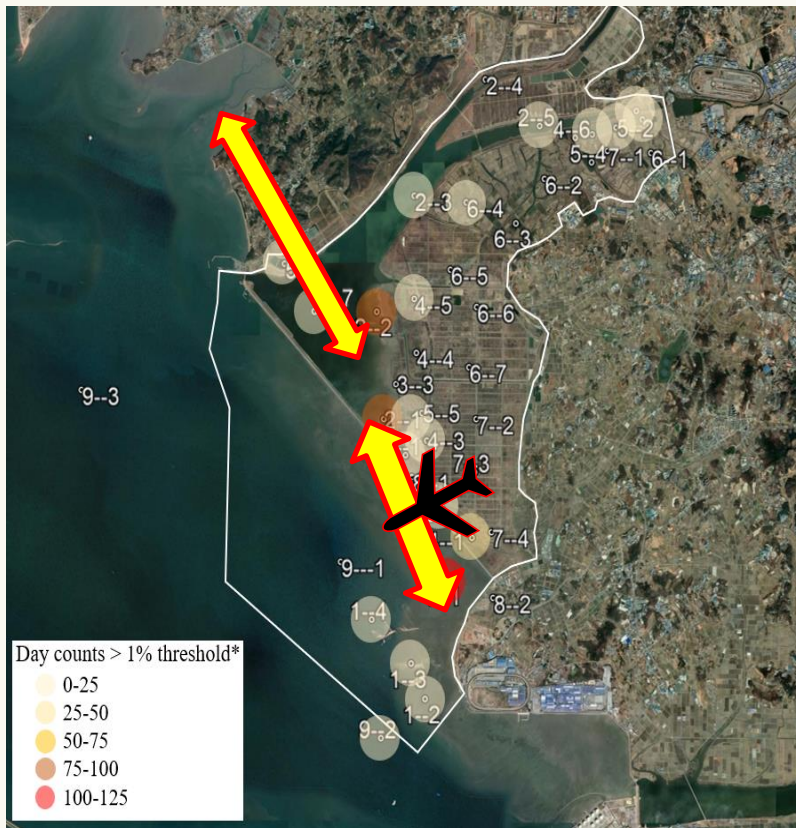


Hwaseong City (2018)



3.1 Imminent Threats

Internationally Important Concentrations, Noise & Flight Lanes



Moore et al. (2022)



Hwaseong City (2018)



3.1 Imminent Threats

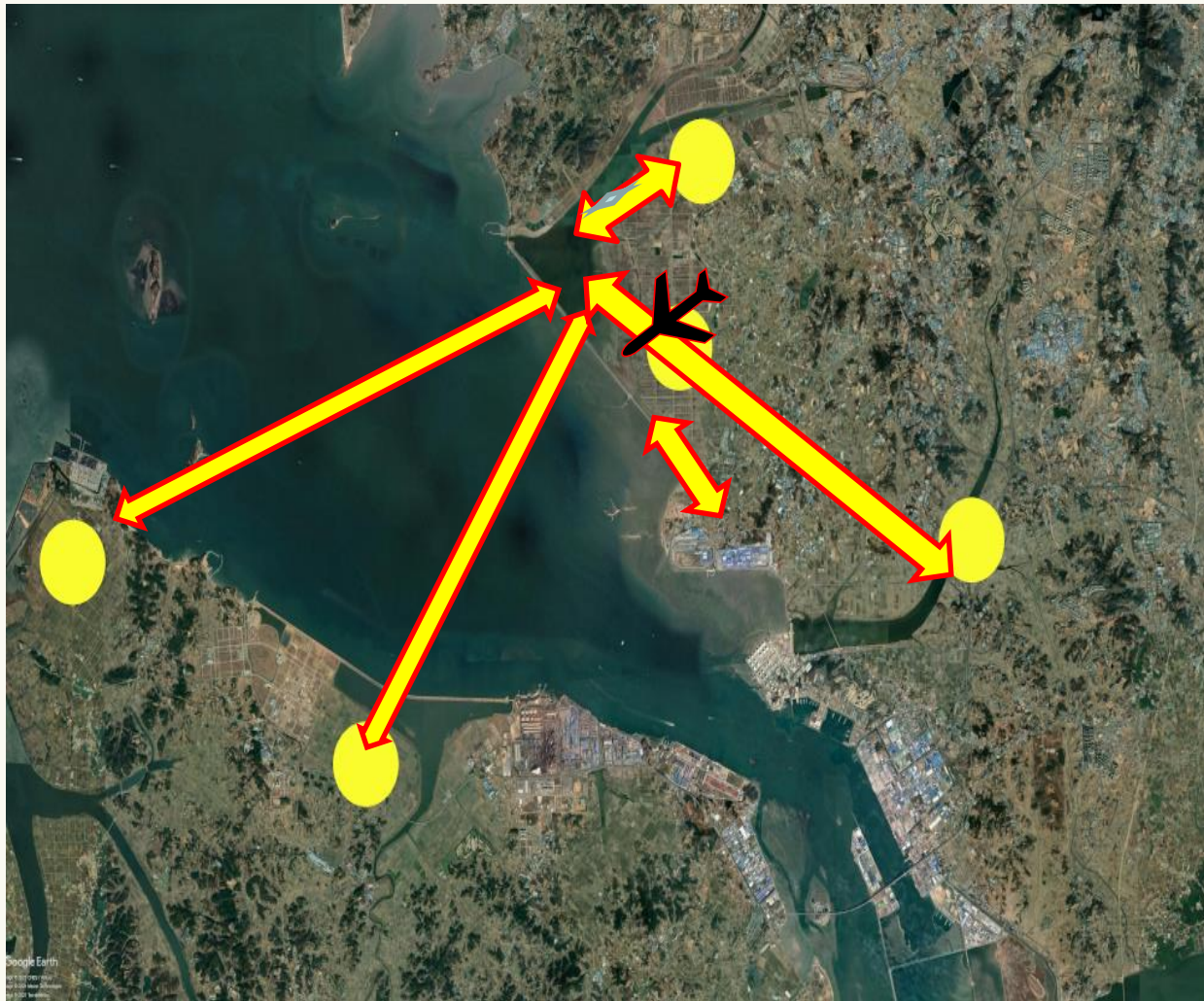
Shorebirds: High Tide Movements (~20,000, Apr-May, Aug-Sep)



Shorebirds cannot swim well; at high tide they are forced into the Hwaseong Reclamation Lake



3.1 Imminent Threats





3.2 Imminent Threats

We are writing to express our growing concern at the proposed construction of a hotel resort immediately adjacent to the Maehyangri Tidal Flats...

increased levels

of disturbance close to roost sites can result in substantially increased energy expenditure...

The related infrastructural development will... result in a substantially increased level and frequency of disturbance to the waterbirds...

AWSG, April 2021



4.1 Planning for Sustainability

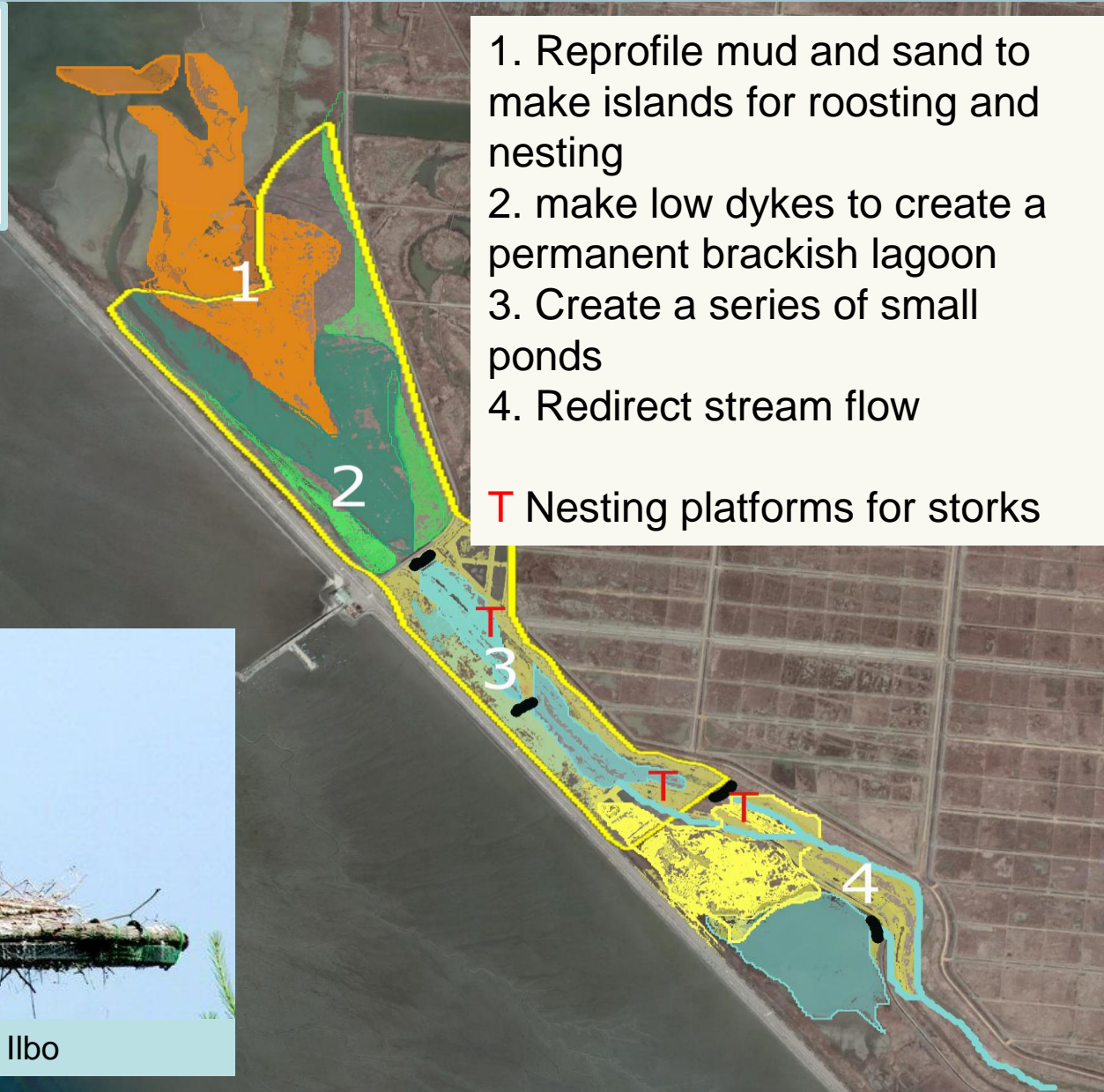
Wetland Restoration benefits include:

- Increased wetland health and resilience
- Increased carbon sequestration; prevention of release of methane gas
- Increased biodiversity, including fish and fisheries
- Increased value for eco-tourism and environmental education (essential to build political support for carbon zero policies)
- New work opportunities
- Reduced levels of water pollution
- Reduced flooding of agricultural land
- Reduced long-term costs of sea defences and river dykes





4.2 Planning for Sustainability (Local)



1. Reprofile mud and sand to make islands for roosting and nesting
2. make low dykes to create a permanent brackish lagoon
3. Create a series of small ponds
4. Redirect stream flow

T Nesting platforms for storks



Image © Daejeon Ilbo



4.3 Planning for Sustainability (Holistic)



Integrated transport system



Enhanced support for fishers & farmers



New educational spaces

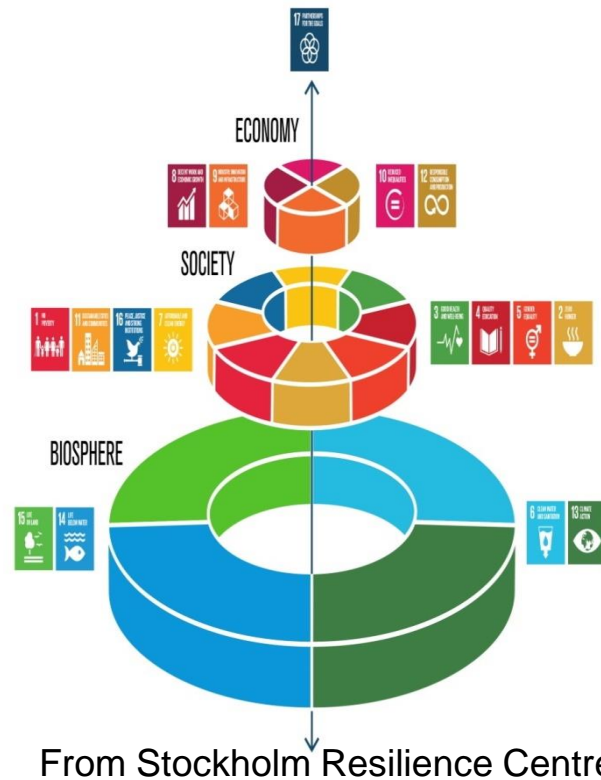


Guided Nature Tours

Details from draft proposals to initiate discussion shared by SAVE International & planning team from UC Berkeley, USA (Sep 2022), developed with input from Birds Korea and Hwaseong KFEM



Thank you for your interest



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Please note: unless stated clearly, all images © Birds Korea