

The direction of conservation for forested wetlands in the Republic of Korea

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Introduction

- In 2015, the United Nations proposed 17 UN Sustainable Development Goals (SDGs). SDGs' sixth goal is associated with water quality, and recommending efforts for availability and sustainable management of water and hygiene(UN, 2015).
- Parties linked to SDGs, including the Republic of Korea, are improving laws on wetland conservation and establishing related databases to protect water-related ecosystems(UN, 2015).
- Wetlands are essential life support systems to a tremendous array of wildlife species and forested wetlands generally support a greater variety of wildlife than nearby upland forests(D. J. Welsch, 1995). In the Republic of Korea, research is being conducted to preserve forested wetlands(Lee, 2015; Kim, 2020; Kim, 2021). However, there is a lack of research on the legal system or status to protect this.
- This study was conducted to grasp the current status of wetland-related systems and designations at domestic and abroad and to utilize them as basic data for establishing policies for forested wetlands in the Republic of Korea.

Method

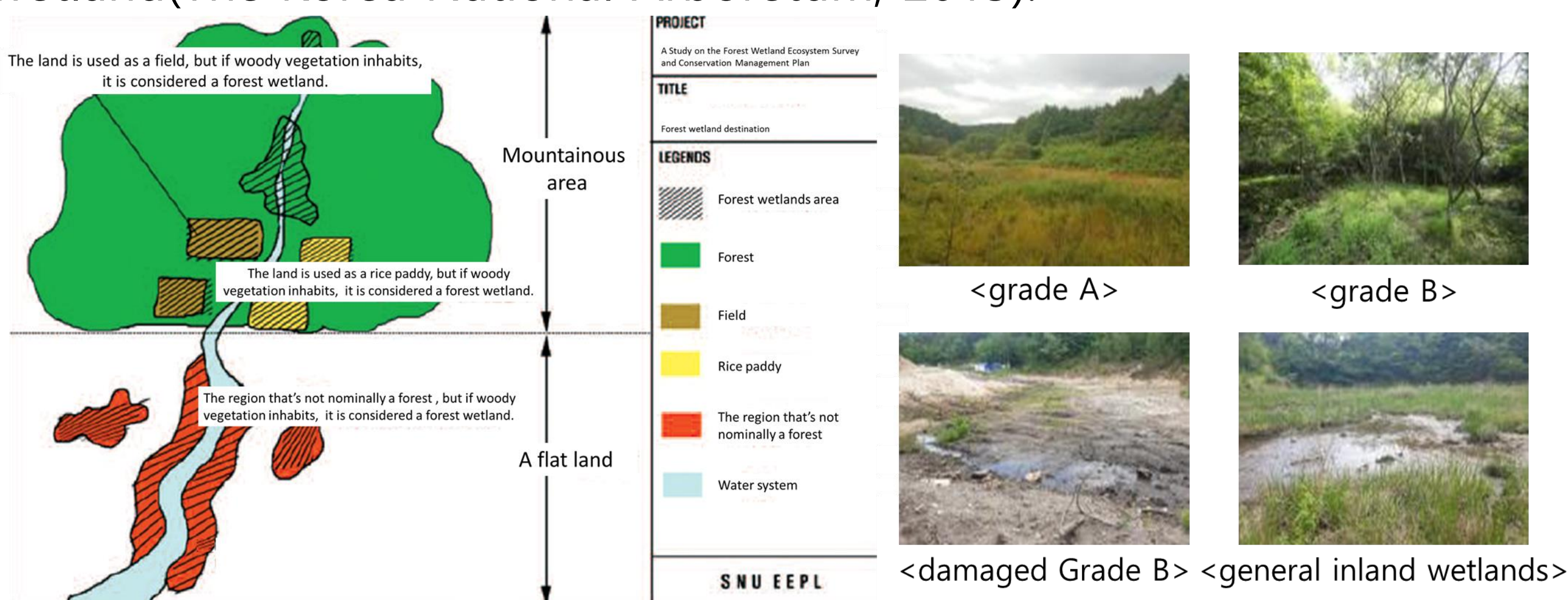
- Identified the characteristics of forested wetlands through field investigations and literature investigations.
- Identified and compared foreign wetland-related systems through literature research.

Result

❖ Understanding the concept of forested wetlands

✓ Definition of forested wetlands

- Forested wetlands are regions where wetland plants such as marshlands, swamps, and peatlands grow naturally in areas connected to forests or forests. Even if the purpose of the land is not a wetland if woody vegetation inhabits, it is regarded as a forested wetland(The Korea National Arboretum, 2015).



The scope of the forested wetlands
 Reference: The Korea Forest Service(2014)

Pictures of the forested wetlands
 Reference: The author found it through an on-site investigation

✓ Function or forested wetlands

- The main functions of forested wetlands include purification, flood prevention, biodiversity maintenance, soil loss and erosion prevention, groundwater storage, and carbon absorption(The Korea National Arboretum and The Korea Forest Service, 2014).
- The total amount of water stored in the forested wetland is the same as 10 large dams and affects the quantity control(The Korea Forest Service, 2014).



Hydrological path and ecosystem service
 Reference: TEEB(2013)

Formation of Forested Wetlands, and SDGs6
 Reference: The Korea Forest Service(2014),
 United Nations Department of Economic and Social Affairs(2021)

The reservoir of forested wetlands in summer
 Reference: The Korea Forest Service(2014)

Result

❖ The current status of wetland-related systems

(1) wetland-related laws

- All four countries protect wetlands from laws in various fields. In common, there are laws related to river or water quality and environmental impact assessment.

(2) wetland management and designation

- In Germany, Ramsar's wetland registration area was the highest at 2.43%(34 units) compared to the land area.

(3) geographic information system

- For systematic wetland management, countries collected data related to wetlands and shared them through the geographic information system.

Wetland management system abroad

Categories	The United States	Canada	Germany	Japan
Related laws	Wetlands are protected by laws in various fields (water quality, environmental impact assessment, etc)			
Wetland area compared to the land area (Based on Ramsar)	0.19% (1,884,551ha)	1.32% (13,086,767ha)	2.43% (868,226ha)	0.41% (154,696ha)
Building a data map	National Wetlands Inventory Program ¹	Canadian Wetland Inventory Progress Map ²	Federal Geographic Information Portal ³ (Geodateninfrastruktur Deutschland)	Natural Environment Survey Web-GIS ⁴ (自然環境調査Web-GIS)

1) <https://www.fws.gov/wetlands/>
 2) <https://www.ducks.ca/initiatives/canadian-wetland-inventory/>
 3) <http://www.geoportal.de/DE/GDI-DE/gdi-de.html?lang=de>
 4) <http://gis.biodic.go.jp/webgis/index.htm>
 Reference: The author made it through literature investigation

❖ Conservation Plan of Forested Wetlands

✓ Forested wetlands-related law

- Contents on the definition and management of forested wetlands should be presented in wetland-related laws.

✓ Wetland management and designation

- It is necessary to establish a network with management ministries such as the Ministry of Environment and the Ministry of Oceans and Fisheries.

✓ Revitalize the establishment of DB nationwide

- DB on forested wetlands has been established, but it is difficult for the general public to use it.

✓ Focus on hydrologic and biodiversity in ecosystem services

- Considering the advantages of grassland and mountainous areas, ecosystem services related to hydrological and biodiversity should be highlighted.

Conclusion

- This study identified foreign wetland-related systems to systematically preserve forested wetlands, the main habitat of forest life.
- As a result of field investigations and literature investigations, it was found that the ecosystem services provided by forested wetlands to humans are diverse such as recreational functions and groundwater storage functions, but are being damaged by neglect or development.
- Also as a result of the comparison, wetlands in both domestic and foreign countries were protected by various ministries' laws, major wetlands were registered in Ramsar wetlands, and information using geographic information systems was constructed.
- Referring to this, it is necessary to supplement the legal and institutional management of domestic forested wetlands and to conduct systematic investigations and share information.