

Type Classification of Damaged Forest in the Island Areas, West Coast of Korea and Analysis on the Characteristics of Restoration Sites

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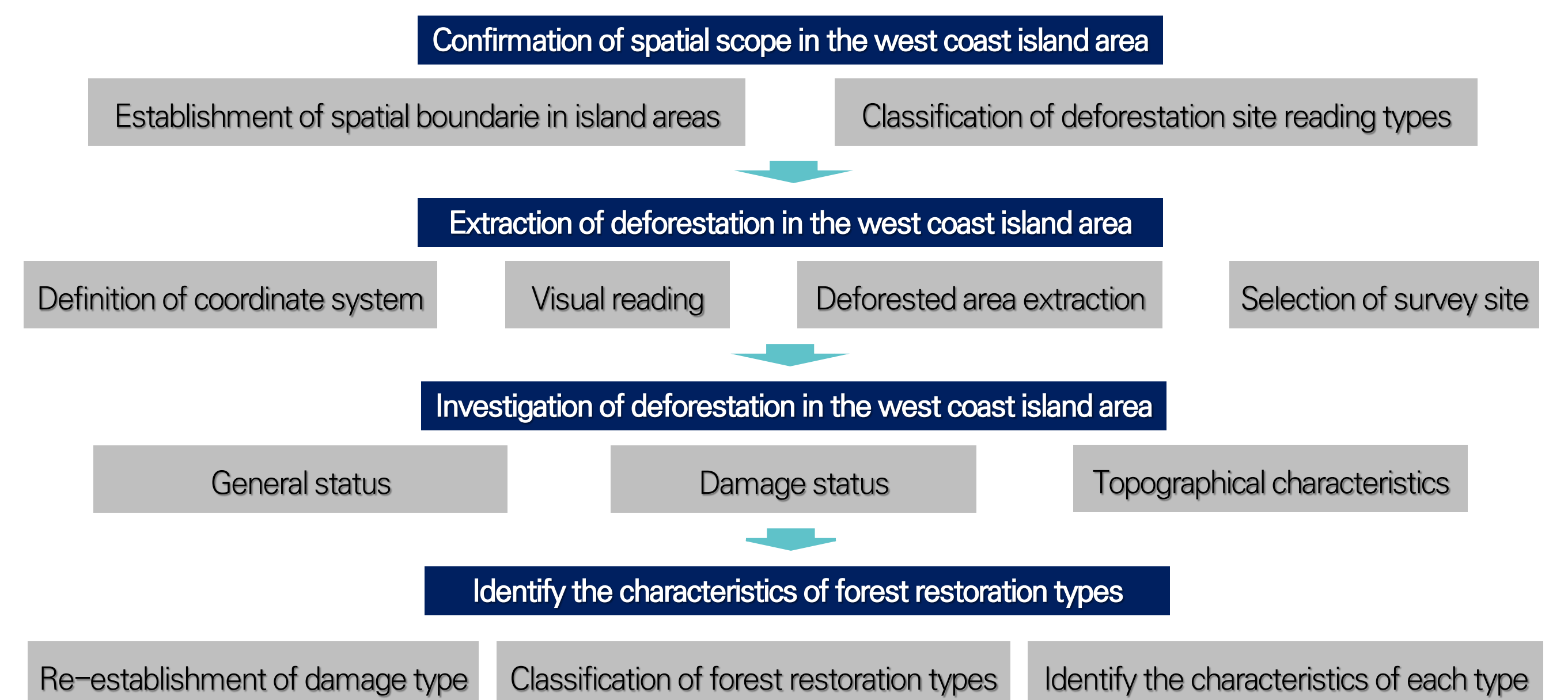
Abstract

The study aims to produce basic data which can be used in establishing a forest restoration plan in the island areas of the west coast of Korea. First, the damaged type of island area was determined based on the GIS data, and a field study was carried out on 110 of the extracted damaged areas for classified type of forest restoration sites with the Forest Restoration Guidelines of the Korea Forest Service. As a result of the analysis, the total number of islands on the west coast of Korea was 1,977 (254,258 ha), with 323 (248,258 ha) of manned islands and 1,654 (5,871 ha) of uninhabited islands. 11 damage types (590 locations) were extracted through video reading of 2,774 suspected deforestation cases (5,431 ha). The field survey was conducted on 110 locations on 44 islands which were reclassified into 14 damage types. Among the types of forest restoration target sites, the types of damage (12 places) that require restoration of the underlying environment are classified into three categories: facility sites, soil and stone ground, and landslide-damaged sites. It was found to be a man-made damages concentrated in private land with high development pressure, especially in Incheon and Jeollanam-do province by region. Vegetation restoration included 9 different types of damage (96 sites) and it was analyzed that Incheon Metropolitan City and Chungcheongnam-do province have a high rate of grassland and livestock grazing land and Jeollabuk-do province with high distribution of grassland and non-stocked forest land. And Jeollanam-do province had 8 types of damage, relatively more various types of damage confirmed compared to other areas. Habitat and species restoration are required for bird colonies and coastal wetland types (one site, respectively). Plants are dying due to fishery and neglected household waste and bird excrement, therefore it shall be considered from the habitat restoration point of view. The research results are expected to be used in extracting target sites for forest restoration plan and a criteria to find the target sites suitable for the characteristics of damaged areas.

Scope and main objectives

- The research aims to determine the spatial scope of forest restoration candidate sites using geospatial data regarding island areas of the West Coast
- classify types of restoration candidates and identify their characteristics by conducting a field study on the target areas.
- The study was carried out to secure basic data that can be used to establish systematic management plans for island areas.

Methods



Results

Confirmation of west coast island areas

Sort	Manned islands		Unmanned islands		Total			
	Count	Area(ha)	Count	Area(ha)	Count	Ratio (% Count)	Area(ha)	Ratio (% Area)
Incheon Metropolitan City	40	70,742	125	1,504	165	8.3	72,246	25.2
Gyeonggi-do	7	4,277	13	67	20	1.0	4,344	1.7
Chungcheongnam-do	34	15,143	210	838	244	12.3	15,980	6.3
Jeollabuk-do	24	3,712	69	206	93	4.7	3,919	1.5
Jeollanam-do	218	154,384	1,237	3,256	1,455	73.6	157,639	62.0
Total	323	248,258	1,654	5,871	1,977	100	254,128	100

Visual reading area of aerial

Sort	Natural damage area		Man-made damage area		Total	
	Count	Area(ha)	Count	Area(ha)	Count	Area(ha)
Incheon Metropolitan City	476	244	236	275	712	519
Gyeonggi-do	17	2	6	2	23	4
Chungcheongnam-do	46	145	266	463	312	608
Jeollabuk-do	24	69	226	207	250	276
Jeollanam-do	228	693	1,249	3,331	1,477	4,024
Total	791	1,153	1,983	4,278	2,774	5,431

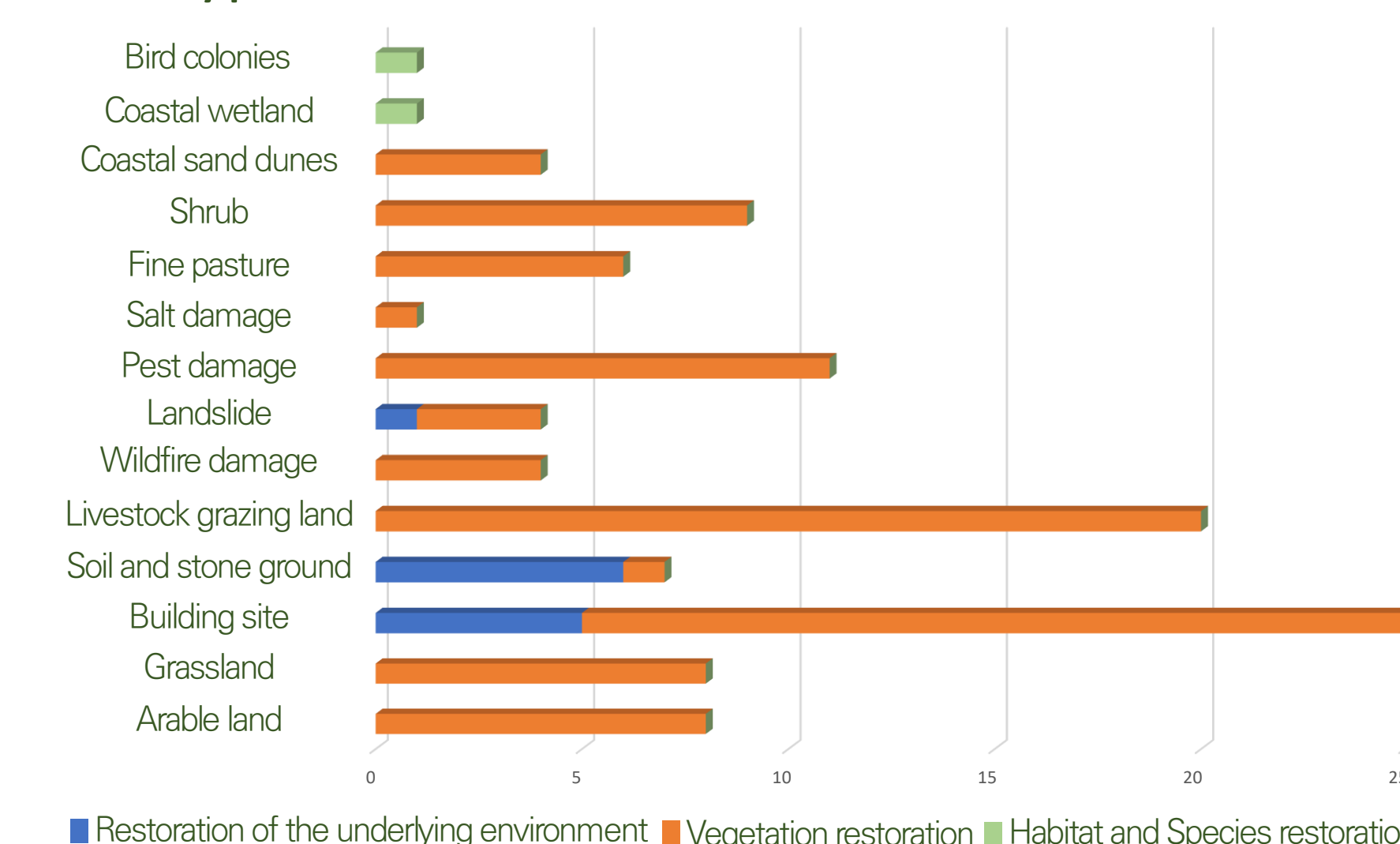
Survey site

Sort	Natural damage area	
	Count	Area(ha)
Incheon Metropolitan City	24	690,457
Gyeonggi-do	1	3,227
Chungcheongnam-do	30	1,955,560
Jeollabuk-do	18	549,705
Jeollanam-do	37	1,671,939
Total	110	4,870,888

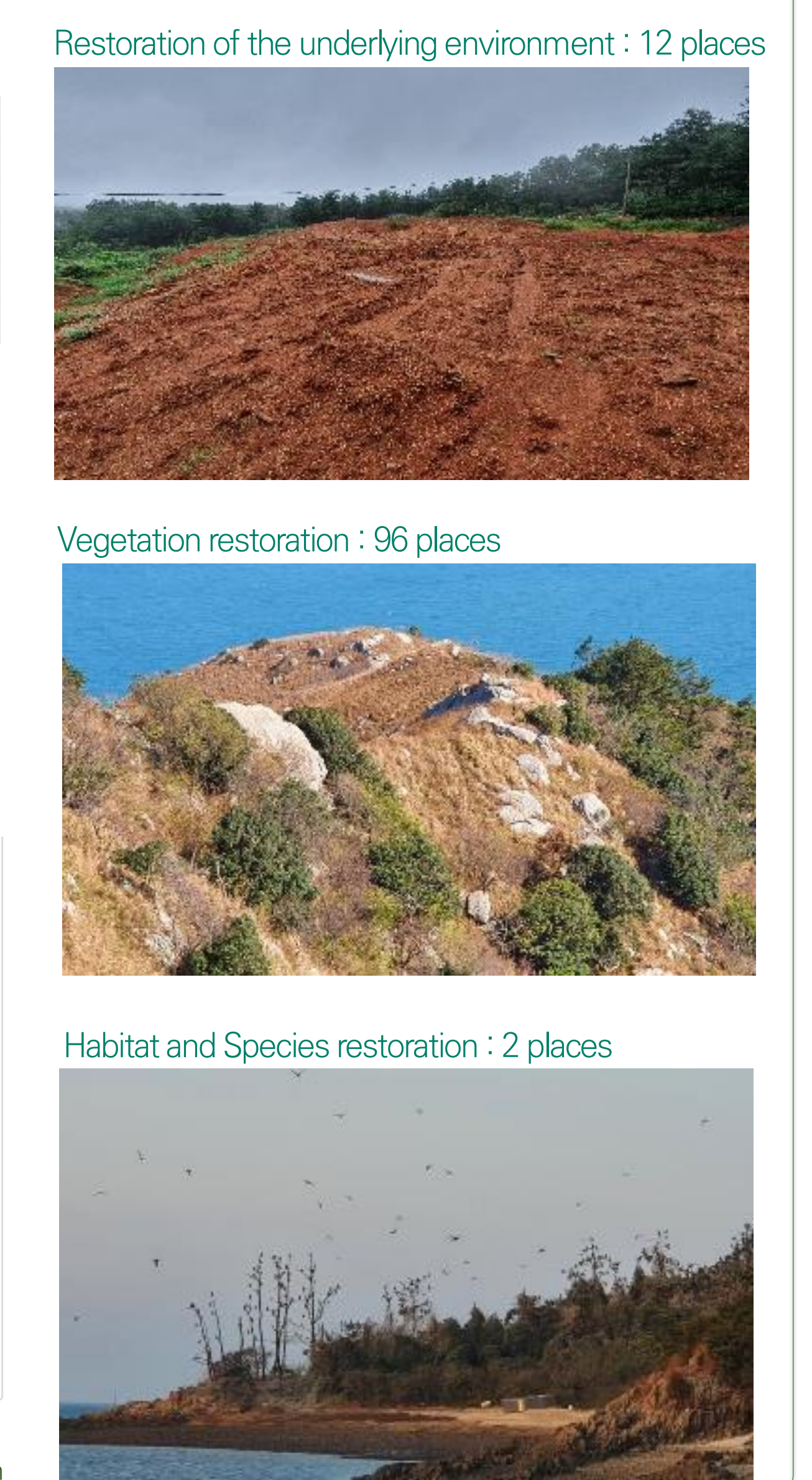
Damage type reclassification

Reading type	Actual damage type
[Man-made damage area]	
Arable land/Grassland	Arable land
Vacant land/Abandoned land	Grassland
Building sites	Vacant land
Quarry	Building sites
Others	Soil and stone ground
	Livestock grazing land
[Natural damage area]	
Wildfire damage	Wildfire damage
Treated land for erosion control	Landslide
Landslide	Pest damage
Salt damage/Typhoon	Salt damage
Fine pasture	Fine pasture
Shrub	Shrub
Others	Coastal sand dunes
	Coastal wetland
	Bird colonies

Types of forest restoration : Guidelines



Areas in need of restoration



Discussion and Conclusion

- Various ecosystems exist and man-made activities are carried out on islands however they have unique regional characteristics and limitations in accessibility and activity
- The study presents the research result on the establishment of spatial scope and classification and characteristics of deforested area types, classification of types of forest restoration candidate sites in the island areas of the West Coast of Korea among naturally and artificially damaged areas.
- The study is expected to be used as basic data for forest restoration in islands and candidate sites for establishing a forest restoration plan and the criteria for selecting a forest restoration candidate sites suitable for the characteristics of damaged areas.
- A field survey was conducted on 110 deforestation sites in the West Coast island areas and 14 types and characteristics of forest restoration candidate sites were studied. As a result, it has been found out that more places and areas were damaged by natural causes than man-made causes in the West Coast of Korea and the restoration plan should be established for the artificial damaged sites as soon as possible considering its urgency.
- In addition, the investigation needs to be conducted in a more quantitative way in consideration of characteristics of each type of damage and a systematic forest restoration plan should be established to the value of the island area.