



Original article

Flora of Jeokgeunsan Mountain in the Civilian Control Zone, Gangwon-do, South Korea

Jun-Gi Byeon^a, Ju-Eun Yun^a, Su-Young Jung^b, Seong-Jin Ji^b, Seung-Hwan Oh^{a,*}^a Division of Plant Conservation, Korea National Arboretum, Pocheon, Gyeonggi-do 487-821, Republic of Korea^b Division of Forest Biodiversity and Herbarium, Korea National Arboretum, Pocheon, Gyeonggi-do 487-821, Republic of Korea

ARTICLE INFO

Article history:

Received 7 October 2014

Received in revised form

20 October 2014

Accepted 21 October 2014

Available online 28 October 2014

Keywords:

demilitarized zone

endemic plants

naturalized plants

rare plants

ABSTRACT

The flora of Jeokgeunsan Mountain forest genetic resources protection zone was identified and the major flora distribution examined. From May 2011 to September 2012, the flora was made up of taxonomic groups including 84 families, 283 genera, 432 species, four subspecies, 59 varieties, and six forma. Eleven families and 16 taxonomic groups were endemic plants to Korea, and 13 taxonomic groups were rare flora of Korea designated by the National Forest Service. Eight families and 24 taxonomic groups for naturalized plants were confirmed and the naturalization rate was 4.8%. Out of 501 taxonomic groups, 404 were resource plants of which 208 (41.5%) were edible plants, 152 (30.3%) were medicinal plants, 199 (39.7%) were herbaceous plants, and 55 (11.0%) were ornamental plants.

Copyright © 2014, National Science Museum of Korea (NSMK) and Korea National Arboretum (KNA).

Production and hosting by Elsevier. All rights reserved.

Introduction

Jeokgeunsan Mountain (1071 m), which is located in the Civilian Control Zone, is situated in the southeastern part of Cheorwon-gun, Gangwon-do, Korea and its administrative borders are with Wonnam-myeon of Cheorwon-gun and Sangseo-myeon of Hwacheon-gun. It is located at north latitude 38° 17' 12" and east longitude 127° 36' 22" and is part of the Hanbuk Mountain Range that breaks apart from the North Korean Chugaryeong Mountain (752 m) of North Korea from the Baekdu Mountain Range. The Hanbuk Mountain Range begins at Chugaryeong and continues to Baekamsan Mountain (1170 m), Jeokgeunsan Mountain, Dae-seongsan Mountain (1175 m), Gwangdeoksan Mountain (1046 m), Baekunsan Mountain (903 m), and Gukmanbong (1167 m), which are currently military zones that restrict civilian access.

Jeokgeunsan Mountain has been designated in one area (1849 ha) as a primeval forest type of the forest genetic resource protection zone designated and administered by the Forest Protection Act, and is being administered by the Northern Regional Forest Service, Chuncheon National Forest Administration Office. The Civilian Control Zone completely restricts access by civilians,

and direct plant investigations are difficult due to spatial constraints such as military facilities and mine fields. Thus, the flora and vegetation were examined in areas around the military facilities and areas in which safety had been confirmed (Kim and Jeong, 2002; Kim et al., 2010; Oh et al., 2009).

Therefore, this study aimed at identifying the flora growing in the Jeokgeunsan Mountain Forest Genetic Resource Protection Zone to reclassify the designation type of the forest genetic resource protection zone, while providing basic data for the management and preservation of efficient plant resources and forest genetic resource protection zones.

Materials and methods

In order to identify the flora of Jeokgeunsan Mountain, field investigations were carried out on six separate occasions from June 2011 to September 2012. The investigation routes normally included valley areas where various species grew wild, slightly dry slope areas, and ridge areas for a balanced ecologic vegetation area (Figure 1, Table 1).

Also, in order to improve the accuracy of results, only those plants with reproductive organs such as flowers, fruits, and pollen were collected. The collected plants were produced as pressed leaf and immersion specimens and stored at the Korea National Arboretum Forest Life Specimen Center Plant Specimen Office (KH). A large part of the Jeokgeunsan area is covered by mine fields, therefore it is a difficult area to access. Thus, when

* Corresponding author. Tel.: +82 31 540 1061.

E-mail address: oshwan@forest.go.kr (S.-H. Oh).

Peer review under responsibility of National Science Museum of Korea (NSMK) and Korea National Arboretum (KNA).

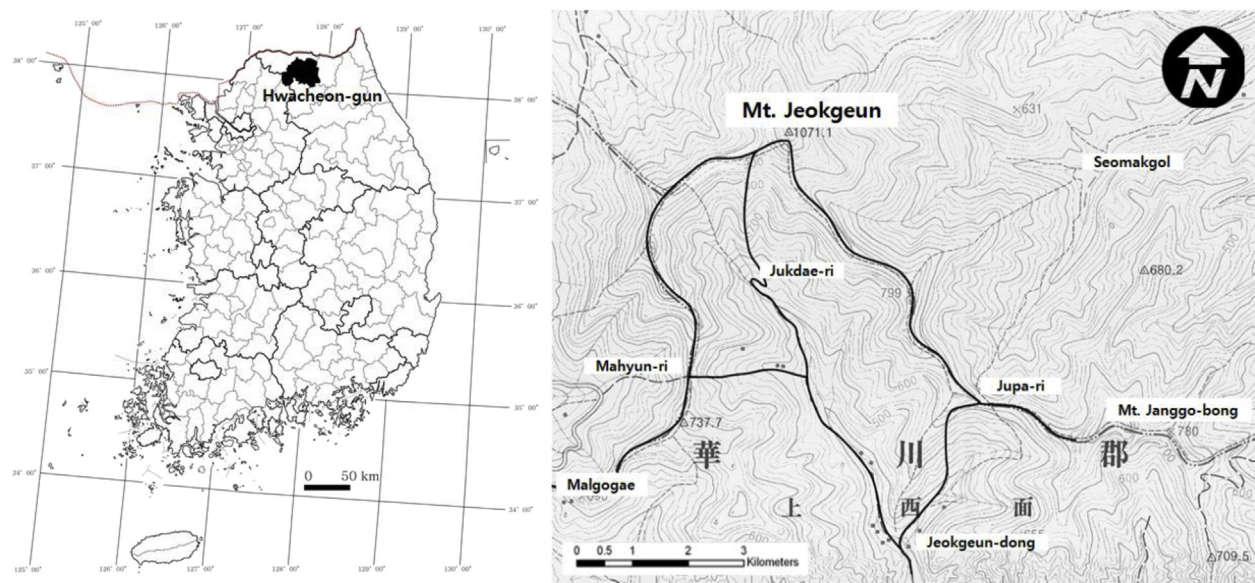


Figure 1. Map of the investigated area in Jeokgeunsan Mountain.

identification was possible or for specific taxonomic groups such as rare species, plants were recorded as iconic documents for species preservations and were included in the flora list without plant specimens.

Identification of the observed plants referred to the illustrated plant books of Lee (1980, 1996a, 1996b, 2003a, 2003b, 2006a, 2006b), Kim and Kim (2011), and Park (2009); for several ferns the illustrated fern book of Korea (Korean Fern Society, 2005) was used, and for Graminae, the illustrated plant book 1 of Korea was used (Korea National Arboretum, 2004). Vascular plant listing followed Engler’s taxonomic system (Melchior, 1964) and their scientific names and Korean names were listed according to the Korea National Arboretum list 2014 (<http://www.nature.go.kr/>). Based on the drafted vascular plant list, the Korean endemic plants (Oh et al., 2005), rare plants (Korea National Arboretum, 2008), floristic characteristic plants (Ministry of Environment and National Institute of Environmental Research, 2006), naturalized plants (Lee et al., 2011; Park, 1995, 2001, 2009), and resource plant usefulness (Lee, 1976) were arranged and presented separately from the overall vascular plant list. The list also included planted species, whichy were indicated using the word “planted” in front of their Korean name (Appendix 1).

Table 1
Investigation dates and routes.

Date	Survey routes
9 May 2011	A: Jeokgeundong → Jupari → Janggobong B: Jupari → Jeokgeunsan
16 June 2011	A: Jeokgeundong → Jukdaeri → Jeokgeunsan B: Jeokgeundong → Mahyunri → Jeokgeundong
17 June 2011	A: Jeokgeunsan → Mahyunri → Malgogae B: Jeokgeunsan → Jupari → Jeokgeundong
24 August 2011	A: Jeokgeunsan → Jukdaeri → Janggobong B: Jeokgeundong → Jupari → Jeokgeundong
25 August 2011	A: Jeokgeundong → Jukdaeri → Jeokgeundong B: Jeokgeundong → Mahyunri → Jeokgeundong
07 September 2012	A: Jeokgeundong → Jupari → Jeokgeunsan B: Malgogae → Mahyunri → Jeokgeundong

Results

Vascular flora

Vascular plants found in the Jeokgeunsan area revealed through this study a total of 501 taxonomic groups comprising 84 families, 283 genera, 432 species, four subspecies, 59 varieties, and six forma. For Pteridophyta, there were eight families, 16 genera, four varieties, and 30 taxonomic groups; Gymnospermae had one family, two genera, three species, and three taxonomic groups; dicotyledons of Angiospermae had 66 families, 211 genera, 314 species, four subspecies, 46 varieties, five forma, and 369 taxonomic groups; and monocotyledons had nine families, 54 genera, 89 species, nine varieties, one forma, and 99 taxonomic groups (Table 2).

When organizing by family, there were 62 taxonomic groups in the Compositae family, 29 in the Rosaceae, 26 in the Lilaceae, 23 in the Leguminosae, 19 in the Aspidiaceae, 17 in the Labiatae, 17 in the Ranunculaceae, 14 in the Umbelliferae, 14 in the Polygonaceae, 14 in the Cruciferae, and 13 taxonomic groups in the Cyperaceae families (Appendix 1).

Endemic plants

Of the 501 taxonomic groups found in the investigation area, endemic plants (Oh et al., 2005) included *Populus tomentiglandulosa*, and *Forsythia koreana* (Rehder) Nakai that were planted, as

Table 2
Summary on the floristics in Jeokgeunsan Mountain.

Taxa	Fam.	Gen.	Sp.	Subsp.	Var.	For.	Total
Pteridophyta	8	16	26	—	4	—	30
Gymnospermae	1	2	3	—	—	—	3
Angiospermae	75	265	403	4	55	6	468
Dicotyledons	66	211	314	4	46	5	369
Monocotyledons	9	54	89	—	9	1	99
Total	84	283	432	4	59	6	501

Fam = family; For = Forma; Gen = genus; Sp = species; Subsp = subspecies; Var = variety.

Download English Version:

<https://daneshyari.com/en/article/4395127>

Download Persian Version:

<https://daneshyari.com/article/4395127>

[Daneshyari.com](https://daneshyari.com)