A Study on Tree Species and Crops of Agroforestry according to Ecological Geographic Map in North Korea

National Institute of Forest Science

A-Ram Yang*, Sohee Park, Eun-hee Kim (Global Forestry Division, Future Forest Strategy Department, National Institute of Forest Science, *aryang@korea.kr)

Abstract

This study was conducted to analyze the appropriate tree species and crops according to agroforestry target sites in North Korea based on ecological geography and site properties with the purpose of preparation of technical cooperation on agroforestry, one of the main agendas of the Inter-Korean Forest Cooperation Subcommittee. The agroforestry is one of the methods for forest restoration that satisfies both North Korea's fuel and food shortages and the restoration of deforested land and it began in 2003. To this end, the ecological geographic map (13 regions and 4 zones) of North Korea was made by using satellite images with North Korean journals. The target sites for agroforestry was classified according to 18 site conditions depending on 3 site characteristics (soil depth, relative location, slope), and divided as short-term and long-term target sites depend on agroforestry management period. And then, appropriate tree species and crops for agroforestry are selected according to them. By regions within the same zone, tree species and crops were mostly similar, but compared to each zone, they differed. This seems to be because the geographical climatic characteristics reflected in the ecological geographic map vary greatly from zone to zone. Through this, it is expected to provide information that can be more efficiently implemented through analysis of the target sites needed for application of agroforestry and needed for application of agroforestry management and the combination of suitable species and crops.

Objective

❖ This study aims to identify appropriate tree species and crops for agroforestry target sites in North Korea based on ecological geography and site properties.

❖ To this end, an ecological geographic map (13 regions and 4 zones) of North Korea was made using satellite images and North Korean academic research articles.

Materials and Methods

■ **Material** : Research articles about agroforestry in North Korea

1. Lee, Y.H. 2017. A study on the classification method of agroforestry target sites using GIS. Forest Science 4: 11-14.
2. Lee, H.S. and Gil, M.C. 2016. A study on the classification of agroforestry target sites of major economic tree species. Forest Science 2: 7-15.
3. Ju, S.J., Kang, J.J. and Kim, Y.C. 2012. A study on ecological geographic map of North Korea. Geological and Geographical Science 2: 48-49.
4. Kang, J.J., Ju, S.J. and Hong, Y.I. 2015. A study on the reasonable determination of type of agroforestry. Geological and Geographical Science 3: 38-40.

■ **Method** : Analyzing the suitable tree species and crops for agroforestry of 2 categories in 4 zones 13 regions according to site condition, management period, and ecological geography in North Korea
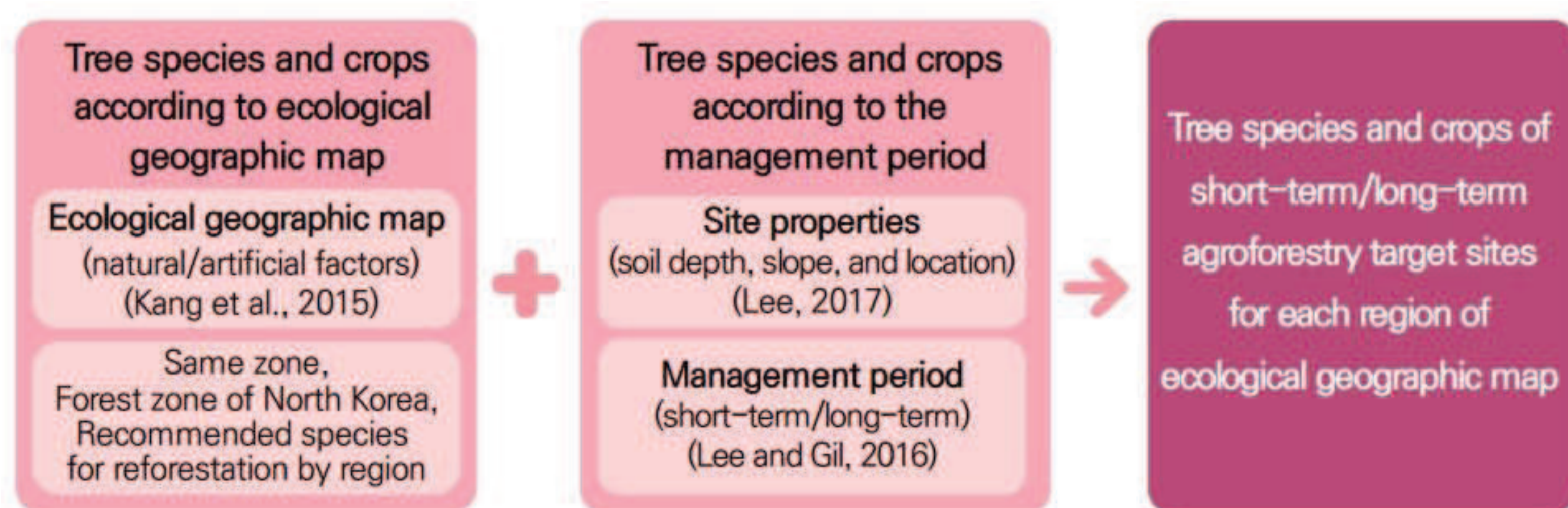
<Figure 1> Method for selecting tree species and crop according to management period of each ecological geographic area.

① The 2 categories of trees and crops were selected considering 18 site conditions and 2 management periods

   ※ Category 1 (12 site conditions) and Category 2 (6 site conditions)

② Tree species and crops were selected considering ecological geography in 4 zones and 13 regions

③ Finally, analysis of the suitable tree species and crops for agroforestry of 2 categories in 4 zones and 13 regions through data integration

Results

❖ Tree species and crops of agroforestry considering both the site condition and ecological geography in North Korea.

<Table 1>

*English name (North Korean name)

✓ **Reference**
• SDC, ICRAF, and MoLEP. 2011. Participatory Agroforestry Development in DPR Korea. (book in North Korea)
• SDC. 2010. Sloping Land Management in DPR Korea-Partnership Results (Asia Brief | Food from the Hills).
• Park et al. 2021. A study on appropriate tree species and crops for agroforestry using an ecological geographic map of North Korea. Journal of Korean Society and Science 110(3): 355-368.