

Alien plant invasions of Jinfo Mountain National Nature Reserve—identifying and implying

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Introduction Jinfo Mountain National Nature Reserve (JMNNR), located in the Range of Dalou and covering an area of approximately 1300 ha and ranging in elevation between 340 and 2251 m, Chongqing, China, contains a diversity of plant species (5900) including subspecies and variation (Han *et al.*, 2006). Though many of the plant species in the reserve are native, there are many harmful exotic species which were identified to have been invading the local vegetation. Unfortunately, little attention has been given to prevent and control the of exotic plant species. The objectives of the project were firstly to identify these exotic plant species and then to discover the degree and severity of the invasions, and finally to reveal the way of invasion.

Materials and methods Twenty-four plots were selected randomly at of 840 m, 1340m, 1840m and 2251m elevation, respectively. Each plot was further decided by 3 degrees of serious destruction, light destruction and no destruction in JMNNR. The plots were designed in the area of 400 m² (20 m×20 m) for arbor, 25m² (5 m×5 m) for shrub and 1m² (1 m×1 m) for herbage, respectively. Each main 400 m² plot consisted of one 25 m² subplot and three 1 m² subplots. All subplots were selected randomly. The parameters of elevations, watershed orientation, soil development, history of disturbance of the plots and subplots in which these exotic plant species were found were recorded. And the cover percentage and average height of present vegetation were also recorded. In addition, invasive plant species were investigated through 3 line transects, 100 m long and 20 m wide. The invasive species encountered within each transect were recorded.

Results A total of 62 exotic plant species were identified and in which 9 exotic plant species were found in 15 sampling plots of the total plots investigated, and all of the exotic plant species were found within the line transects. *Miscanthus floridulus* (Labill.) Warb. was discovered to be one of the most seriously invasive plant species, and was discovered at almost all the places where mankind had reached. Fifty percent of the total invading exotic plant species were intentionally introduced (II). Twenty three percent were spontaneous invasion (SI). Aimless introducing (AI) and unknown invasion (UI) invading exotic plant species were nineteen percent and eight percent, respectively (Figure 1). While the most seriously invading plant species-*Miscanthus floridulus* (Labill.) Warb. was UI.

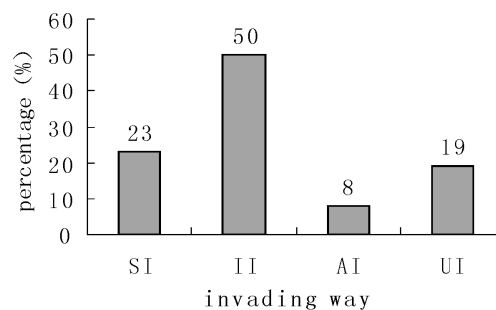


Figure 1 The invading way of exotic plant species in JMNNR.

Conclusions Invasions of exotic plant species in JMNNR was seriously, and what is dangerous is that the invasive way of the serious invasive plant species was unknown. Research and sustainable works need to be done in the future.

Reference

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