Predicting potentially unsuitable site for *Sasa* growing, the core for restoring endangered grassland plants

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Introduction

To 1960's

Most of grasslands in Japan had been managed for collecting roof materials, organic fertilizer etc.

Change since 1960's

Threat roof materials, Use of chemical fertilizer
Depopulation in local area etc.

Many grasslands species are threatened

degradation of light condition for grassland species due to change of grassland from *Miscanthus sinensis* to *Sasa* type

Limiting factor = *Sasa* growing

The core concept

The core area for conserving and restoring endangered grassland plants is unsuitable site for *Sasa* growing.

Study site

Species-rich grassland

Species-poor grassland

Aim and method

Develop a method for producing species richness map as a basis of restoration planning

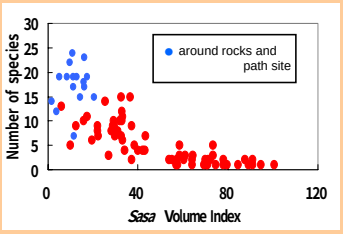
Step-1
Negative relationship between species richness and degree of *Sasa* growing

Step-2
Potential degree of *Sasa* growing can be estimated by environmental parameters

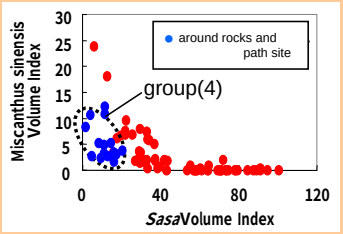
Step-3
Species richness can be mapped by environmental parameters through the estimation of the degree of *Sasa* growing

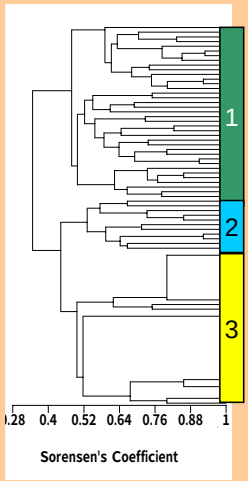
Result

Step-1



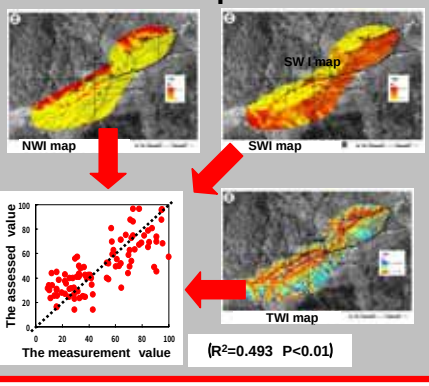
Negative relationship





Vegetation can be categorized into 3 groups (1-3) + a type around rocks and path (4).

Step-2

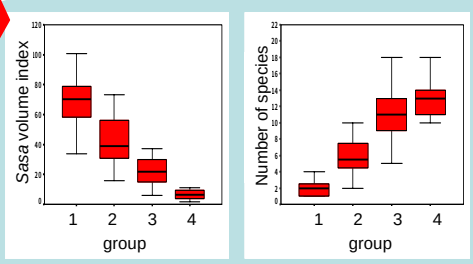


(R^2=0.493 P<0.01)

***Sasa* volume index =**
0.096*NWI - 0.214*SWI+7.666*TWI+21.2

Multi-regression analysis
NWI : wind velocity index from north
SWI : wind velocity index from south
TWI : topographical wetness index

Step-3

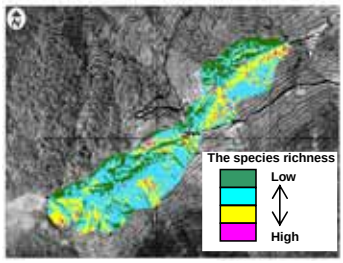


Group	species -richness	number of species	*Sasa* volume index
1	Low	~3	60>
2	↕	4~9	35~60
3		9~13	15~35
4	High	13~18	<15

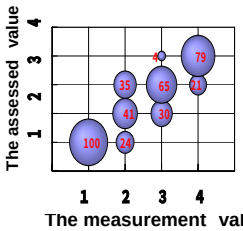
Estimation of the degree of *Sasa* growing

The species richness map

Conclusion



The species richness map



Estimated species richness (accuracy : 70.4%)

The core area for conservation and/or restoration is visually detectable.

The species richness map is usable for consensus building.