

ANALYSIS OF THE RELATIONSHIP BETWEEN ECOSYSTEM DISTRIBUTION AND LAND USE PATTERNS USING NATURAL ENVIRONMENT SURVEY

K. NISHIOKA¹, M. FUJIU², and Y. MORISAKI³

¹ Undergraduate Student, School of Geosciences and Civil Engineering, Kanazawa University, Kanazawa, Japan,

² Ph.D., Faculty of Transdisciplinary Sciences for Innovation, Kanazawa University, Kanazawa, Japan,

³ Dr. Eng., Faculty of Transdisciplinary Sciences for Innovation, Kanazawa University, Kanazawa, Japan,

Correspond to Dr. M. FUJIU (fujiu@se.kanazawa-u.ac.jp)

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1. INTRODUCTION

Approximately 1.75 million species of organisms exist on the earth. In recent years, however, this biodiversity has been lost due to environmental destruction caused by humans and other factors, and many wild creatures around the world are in danger of extinction. Therefore, it is necessary to conserve biodiversity in the future.

In this study, analysis is conducted with the aim of understanding the actual situation of biodiversity loss. Using the natural environment survey conducted by the Ministry of the Environment's Biodiversity Center, the relationship between land use patterns, human activities, and the distribution of organisms can be analyzed, and the impact of human activities on the habitats of each species can be clarified. The target area shall be Ishikawa Prefecture in Japan.

2. RELATIONSHIP ANALYSIS BETWEEN POPULATION/HUMAN ACTIVITY AND BIODISTRIBUTION

This study analyzes human activities based on population distribution, land prices, and land use patterns in Ishikawa Prefecture, and evaluates population and human activities. Furthermore, the distribution of each species inhabiting Ishikawa Prefecture can be clarified, and the relationship with population and human activities can be analyzed.

For each 10km mesh, by calculating the difference in the number of species from the survey data of the target organisms and visualizing it as a change in the distribution of each organism, the increase or decrease can be evaluated. Figure 1 shows the analysis results for mammals. Between the second and fifth surveys, the number of species increased mainly only in forested areas and decreased in other areas. Mammals mainly inhabit forested areas, and even if they have moved into other areas in search of food and other resources, they have not been able to expand their habitat due to extermination by humans or maladaptation to the environment.

In addition, for each species of interest, an analysis of the relationship between the population and the number of species for each mesh will be performed. Table 1 shows the results of correlation analysis between population and number of species. A positive correlation was observed between population and the number of species of birds, dragonflies, cicadas, beetles, amphibians and reptiles, confirming a relationship between population and habitat. No correlation was found between population and the

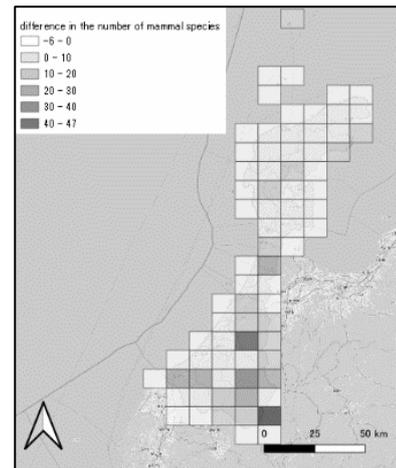


Figure 1 difference in the number of mammal species

Table 1 Results of correlation analysis between population and number of species

	2 nd survey (1978-1980)	3 rd survey (1983-1988)	4 th survey (1988-1993)	5 th survey (1993-1999)
Birds	0.463	0.692		
Mammal	0.004		-0.016	0.027
Amphibians/Reptiles			0.480	0.252
Dragonfly			0.234	0.329
Butterfly			0.128	0.124
Cicada			0.019	0.366
Moth			-0.034	-0.017
Beetle			0.636	0.330

number of species of mammals, butterflies, and moths, confirming that there is no relationship between population and habitat.

3. CONCLUSIONS AND FUTURE WORKS

In this study, the relationship between land use patterns and human activities and the distribution of organisms was analyzed. The correlation analysis between population and the number of species of organisms was conducted to determine the correlation between population and the number of species of organisms.

In the future, environmental factors such as global warming and meteorological conditions, biological factors such as vegetation, pollution and alien species should be considered as factors that affect the habitat of organisms.

REFERENCES

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