

# The Characteristics of Biological Monitoring by Residents in Agricultural Landscapes in Japan

ED-13-02

Masayuki Nitta<sup>1</sup>, Naohisa Nakashima<sup>2</sup>, Mitsuru Ohira<sup>3</sup>, Muneyuki Aoki<sup>1</sup>

Keywords : biological survey by residents, citizen science, agricultural environments, paddy fields

## 1. Introduction

### Citizen Science

### Biological / Species Survey by Citizen



In Japan, in the prefectural government alone, local residents have a movement to conduct surveys of living things. In Tochigi Prefecture, "Survey on Lives in Paddy Fields and Surrounding Environment" has been mandatory

Many kids and residents attend the survey



Utsunomiya City

We collected the survey data from 37 organizations that had conducted the local residents-attend biological survey in 2018.

### Expected effect of citizen biological survey

- ✓ Obtain detailed information about biodiversity
- ✓ Environmental education for the residents
- ✓ Restoration of local communities

Quantitative elucidation of the relationship between paddy fields biodiversity and the efforts of the survey with local residents will **contribute to the formation/reformation of local communities and the conservation of biodiversity.**

## 2. Objective

**This study aims to clarify the social characteristics of biological surveys by residents and examine the sustainability of activities.**

## 4. Result & Discussion

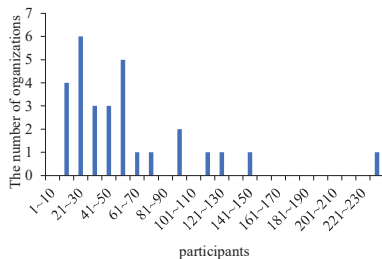


Fig.1 Frequency of the number of attendees

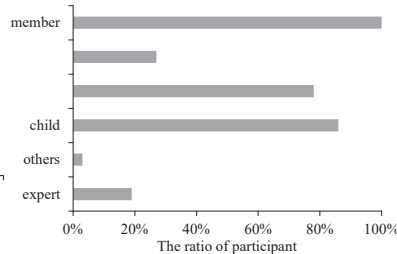


Fig.2 The attribution of the attendees

Table 2 The cluster classification of the organizations

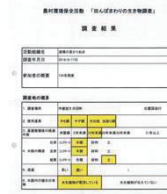
No.	Characteristics	Type	Discussion	Species
Class 1	Children attended, non experts attended, all documents submitted, survey one time, one or two attributions.	Complete document type	3.0	8.3
Class 2	Children attended, non experts attended, survey one time, almost one attribution.	Children's participate type	2.4	10.0
Class 3	Children attended, experts attended in some case, survey two times, two or three attributions.	Multiple surveys type	3.3	12.0
Class 4	Children attended, experts attended, survey one times, two or three attributions.	Multi-attribution type	2.3	12.8
Class 5	Non children attended, non experts attended, survey one times, no attribution.	Non-child participate type	1.7	8.3

## 3. Methodology

### Target area

We used the data from the community-based biological survey conducted in 2018. Thirty-seven organizations in Utsunomiya City conducted this survey in rice paddies, surrounding farm ditches, and reservoirs.

### Data collection

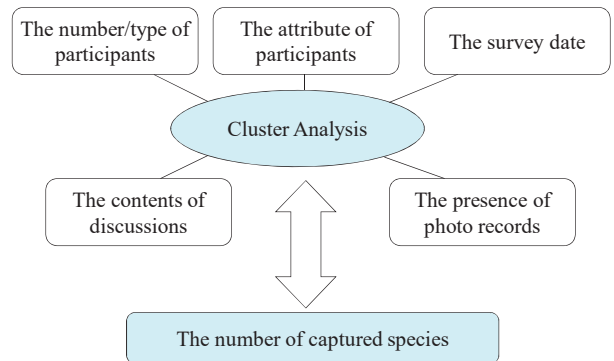


The format of the survey sheets. The attendee records the environmental situations and species they found.

Table 1 An example of the survey sheets used in the biological survey by the local residents in Utsunomiya City in 2018.

Basic items	Name of the activity organization, date of survey, an outline of participants, survey location, number of years since infrastructure development, the design of the farm ditch, flow velocity, presence of vegetation in the ditch.	
Captured species	Paddies	Birds, butterflies, dragonflies, amphibians, reptiles, fishes, shellfishes, insects, water plants
	Farm ditches	amphibians, fishes, shellfishes, insects, water plants
	Reservoirs	amphibians, fishes, shellfishes, insects, water plants
Discussions	Participants' ideas on the results of the survey, participants' ideas on the conservation environments in their rural area.	

### Analysis



1. CA to categorize organizations characteristics
2. Compare categorized classes with survey results

### Summary

Table 1 shows that the average discussion score of the organizations with children participating was 2.8, much higher than that of the organizations without children (which was 1.7).

In addition, the organizations surveyed multiple times were more likely to include both child and expert, and had the highest discussion scores (3.3).

- Children's participation (resulting in increasing the number of surveys) indicated a high level of interest in the survey of natural lives in the community environment, leading to more active discussions.

- The group with the highest number of species captured also had experts participating.

### Type

- (C1) no inadequacies in the documentation
- (C2) characterized by children's participation but not experts.
- (C3) the survey was conducted multiple times
- (C4) the attributes of the attendees were diverse.
- (C5) children and experts do not participate.

1) Dep Civil and Environmental Engineering, Toyo University  
 2) Dep Agro-environmental Science, OUVAVM  
 3) Tokyo University of Agriculture and Technology  
 Contact ☒ : nitta061@toyo.jp