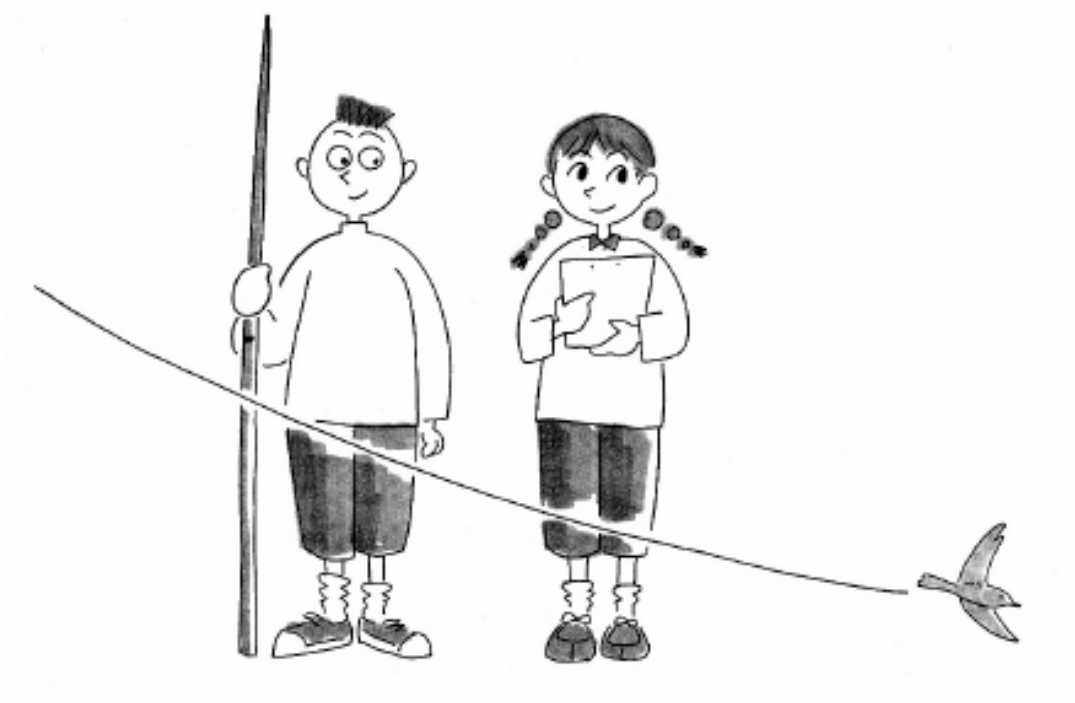
Monitoring Site 1000

Guidebook on Survey of Bird Species Living in Forests and Grasslands

(Revised in April 2009)



This manual is an English translation of the Japanese version and has not been reviewed by experts. Some technical terms and expressions may not exactly capture the intended nuances.

Biodiversity Center of Japan (Nature Conservation Bureau, Ministry of the Environment)
Wild Bird Society of Japan
Bird Research (NPO)

Table of Contents

1
Before starting a survey
Flow of survey ……2
Change of bird survey method ……3
Preparations for survey ……4
After completing a survey ……6

2
Method of survey
Method of investigating the whole environment ……8
Method of investigating the species and number of birds …….10



1

Before starting a survey

This section explains the flow of surveys on bird species living in forests and grasslands under the Monitoring Site 1000 after survey sheets are sent. Certain preparations are required for conducting a survey. Once a survey is completed, please send us back the survey sheets.



Flow of survey

The flow of surveys on bird species living in forests and grasslands is as follows.

Survey sheets, maps, and survey guide will be sent

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Make preparations for survey

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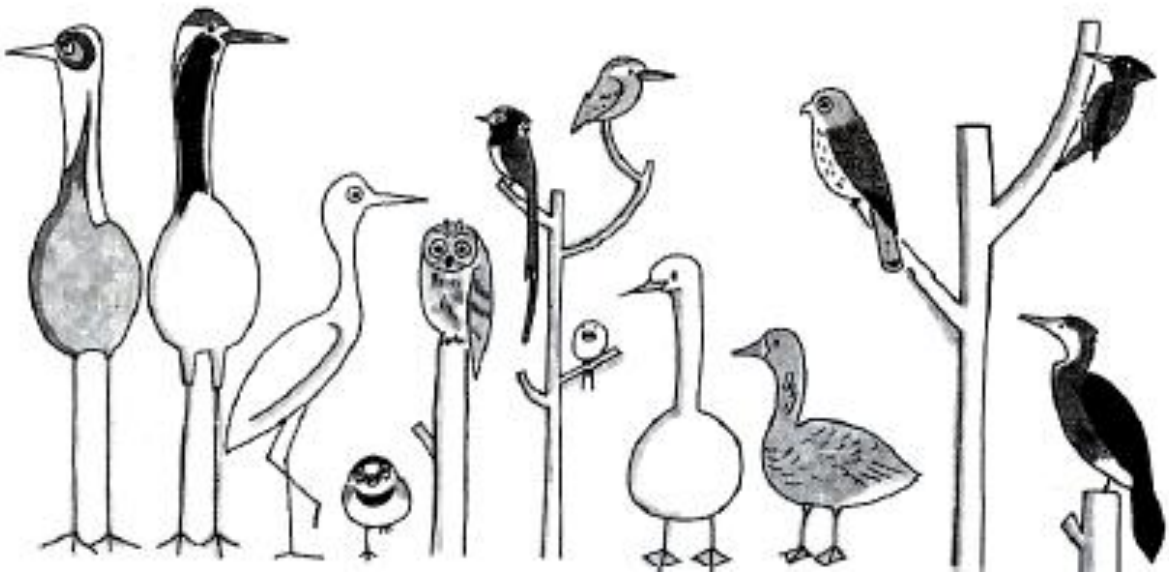
Conduct a survey

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Send survey sheets back

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Examine and disclose results



Change of bird survey method

The Monitoring Site 1000 Forest and Grassland Survey was changed from line census in the past to spot census. The reasons for this change are explained below.

▼Reasons for the change to spot census

Most of surveys on the status of habitat of bird species in Japan have been conducted by the line census method. This is an efficient survey method allowing investigators to cover a large area by walking. Most of surveys on the status of habitat of bird species in the UK are also conducted by this method.

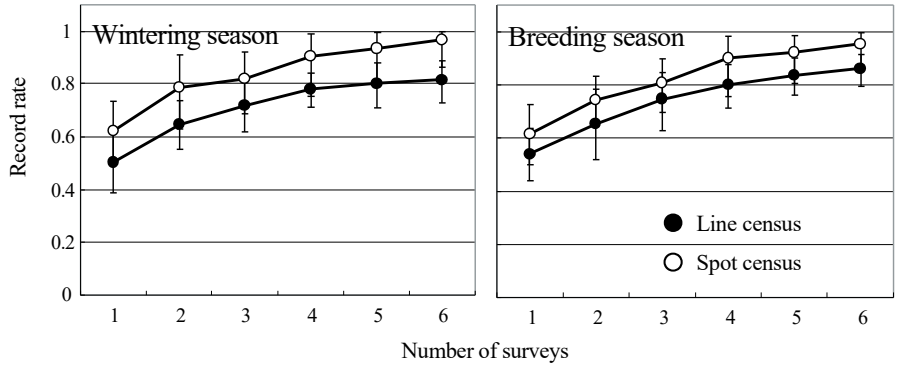
However, in cases where there are many participants such as the Monitoring Site 1000 project, there are some disadvantages. One is the setting of a survey course. A survey course for the forest and grassland survey should be 1 km, but this setting may vary depending on investigator. During the first period of the Monitoring 1000 project, many courses were less than 1 km or over 3 km. It is difficult to compare survey results if the distances are different. The second disadvantage is the time required for survey. Investigators are supposed to walk a course of 1 km within 30 minutes, but it took some investigators a few hours in the worst case.

Therefore, we have decided to adopt the spot census method to eliminate those problems and allow us to easily compare results between survey sites. This method is common in the US.

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▼Efficiency of the spot census method

The spot census method sets fixed points in a survey site to record birds around them. Since the survey area is narrower than the line census method, you may be concerned that the number of birds recorded would reduce. However, the results of preliminary surveys indicate that more birds are recorded by the spot census method. Possible reasons for this are that, even if investigators do not move, birds move toward them, and that it is easier to hear faint bird songs by the spot census method, because investigators do not move compared to the line census method in which investigators have to walk, making it difficult to hear birdsongs due to footsteps. In any case, the adoption of spot census does not mean that more records of birds will be missed.



Differences in the status of bird species living in forests recorded by the line census method and the spot census method. This data indicates that the spot census method can record more birds both in the wintering season and in the breeding season.

Preparations for survey

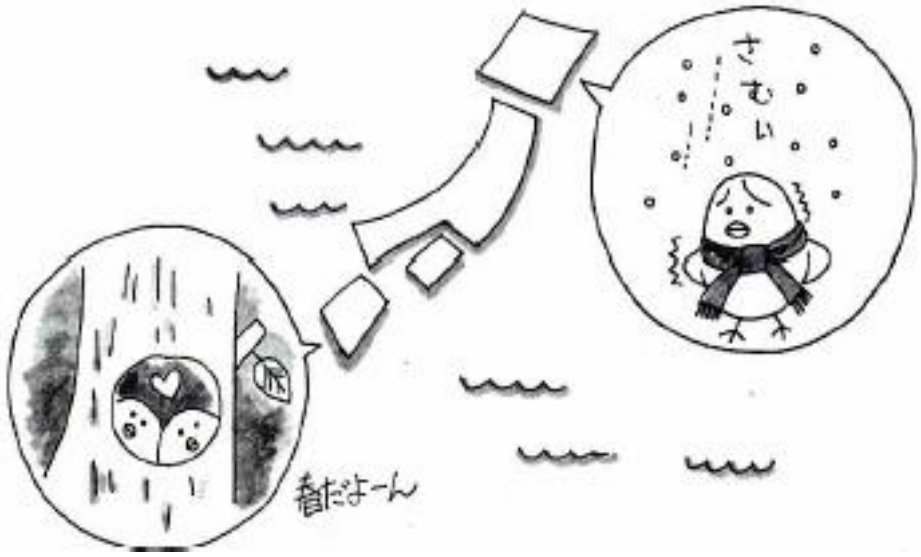
▼Setting of the time and date of survey

The survey is conducted a total of two days, one day in the early breeding season when birds sing loudly and another day in the peak breeding season. During the wintering season, the survey is conducted two days leaving an interval over two weeks between them after all types of winter birds are present. The desirable time and date for surveys differ from one region to another, because Japan is well extended from north to south as well as from east to west. The time of day in which birds sing loudly is limited, especially, in the breeding season. Please set the time and date for survey in accordance with the circumstance of each area with reference to the following table. During the wintering season, it is recommended to conduct the survey before 11:00 AM between mid-December to mid-February nationwide. Since this survey aims to investigate the density of birds that reproduce in one survey site, avoid a period when many migratory birds are passing even if resident birds are reproducing.

■ Suggested survey period of each area

This is a rough indication. You may modify the time and period in accordance with the circumstance of each survey site (e.g. It is recommended to move forward the time of survey in an area where the Japanese spring cicada (*Terpnosia nigricosta*) chirr).

Area	Breeding season		Wintering season	
	Period	Time	Period	Time
Southeast	April ~ May	6:00~9:00	Mid-December ~ Mid-February	8:00~11:00
Kinki to the west	Late May ~ June	5:00~8:30	Mid-December ~ Mid-February	8:00~11:00
Central Honshu ~ Tohoku	Late May ~ June	4:00~8:00	Mid-December ~ Mid-February	8:00~11:00
Hokkaido	June ~ early July	4:00~8:00	Mid-December ~ Mid-February	8:00~11:00



▼Preparations of survey sheets, maps, and guidebook

■ Survey sheets

There are dedicated survey sheets and maps. Five types of sheets will be sent (survey course information, survey site map, record sheet for survey on the number and species of birds, survey site photos, and remarks on survey and comments). See the following table for a rough indication of the necessary number of sheets. Moreover, a survey guidebook (this booklet) is prepared for each investigator.

■ Necessary number of survey sheets for conducting a survey of one course (the following table shows a rough indication in the breeding season).

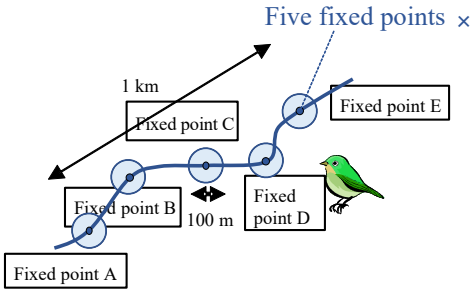
Survey sheet	Number of sheets
Survey site information	1
Survey site map	1
Record sheet for survey on the number and species of birds	20
Sheet for attaching photos of survey site	5
Remarks on survey and comments	1

▼Preparations at a survey site

1. Conduct a preliminary inspection of the survey course (for the purpose of not getting lost during the survey)

2. Determine five fixed points for survey





Set five fixed points (A~E) on the survey course of 1 km. Set five fixed points for forest environments in a forest site, and set five fixed points for grassland environments in a grassland site. Five fixed points are set at intervals of 250 m from the starting point. However, the interval does not need exactly to be 250 m, because fixed points will continue to be used for survey. Instead, choose easily-identifiable points. Moreover, in cases where deciduous broadleaf trees are mixed in afforestation and only afforestation exists if fixed points are set at intervals of 250 m, or in cases where you know places where birds get together such as water places, set fixed points in a way that such an environment on the survey course is included. However, avoid setting an interval between fixed points shorter than 100 m.

After completing a survey

Once the survey completes, send the survey sheets back to the Nature Conservation Office, Wild Bird Society of Japan.

■ Survey sheets to be sent back

Survey sheet	Necessity of return
Survey course information	Yes
Survey site map	*1
Record sheet for survey on the number and species of birds	Yes
Sheet for attaching photos of survey site	Yes
Remarks on survey and comments	*2

*1 You don't need to send the "survey site map" back if you have sent it once when determining a survey course. However, you need to send it when the survey course has been modified.

*2 You don't need to send the "Remarks on survey and comments" back if there is no special comment.

■ Return address
3-9-23 Maruwa Building, Nishi-gotanda, Shinagawa-ku, Tokyo 141-0031,
Japan
Person in charge of monitoring
Nature Conservation Office, Wild Bird Society of Japan



2

Method of survey

The environment and the number and species of birds are investigated in the Monitoring Site 1000 Survey on Birds Living in Forests and Grasslands. Here, each survey method and examples of how to fill in survey sheets are explained.



Method of investigating the whole environment

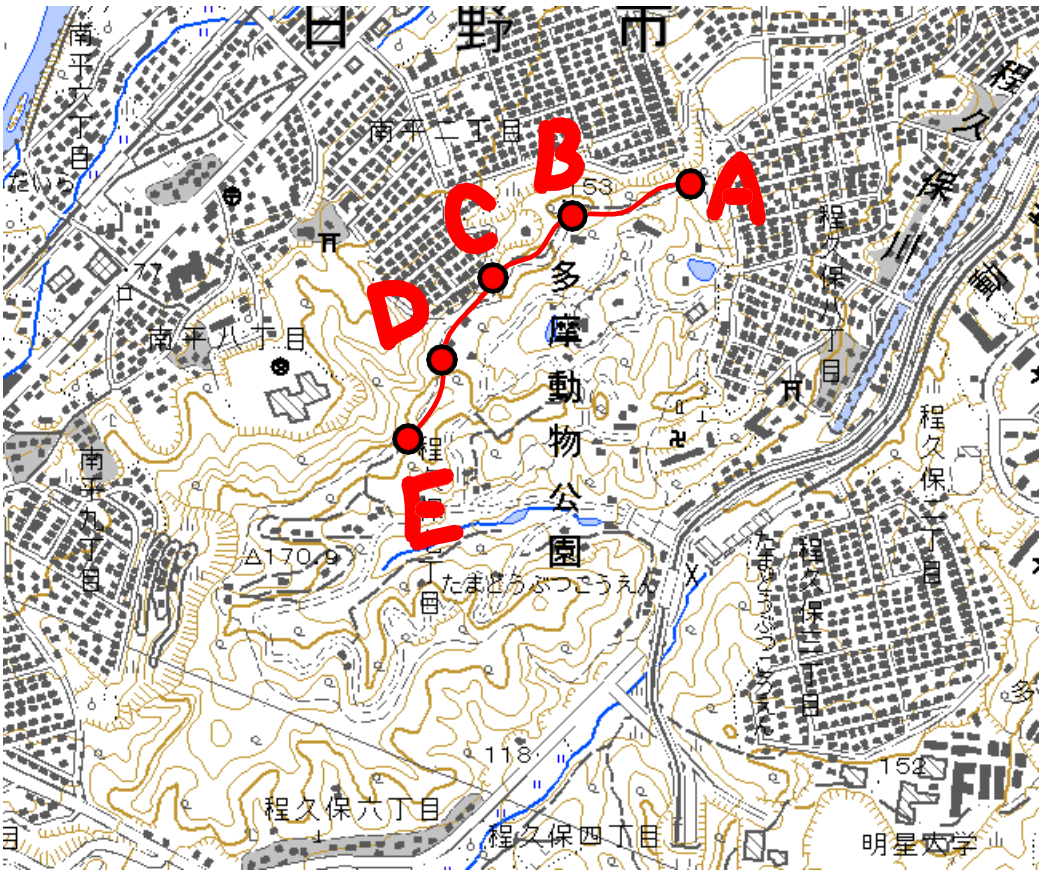
The characteristics of the whole environment are recorded such as terrains and vegetation of the survey site.

■ Necessary tools
Maps, “1. Survey course information” and “3. Sheet for attaching photos of survey site”, camera, and writing materials

▼Guidelines for survey

1. Fill in a survey sheet, “1. Survey course information”
   There are items you need to enter every time the survey is conducted and items you need to enter once either in the breeding season or wintering season. The details can be found in a survey sheet, “1. Survey course information” (See the example in the following page).

2. Photo shooting of survey course
   - Take photos at the five fixed points (A, B, C, D, E) in both the breeding season and the wintering season.
     *Take photos of the fixed points including the survey route so that their positions can be identified at a survey conducted five or more years later.
   - Take photos at the same places every time.
   - Enter the five fixed point (where photos are taken) on the map (See the figure below) at the first survey and when the course is modified.



▼Example of entry to survey sheet

1. Survey course information *The columns with "*" should be filled in both in the breeding season and the wintering season.

* Survey course name: **Back side of Tama Zoological Park** * Survey course number: 100999
(Put a name if no name is written on the map sent) (Enter the number on the map sent)

* Representative of survey: **Tsugumi Nohara**

* Participants in survey: **Kakesu Morino, Suzume Hatano**

Survey course address **Tokyo** Prefecture **Hino** City/Town/Village/County **Minamidaira**

Course information (you need to fill in once either in the breeding season or in the wintering season and when any change is made)

Environment (choose one)	(Forest) / Grassland	
Geography (choose one)	Mountain / Basin / (Hill) / Plain	
Terrain (multiple answers allowed)	Ridge / (Slope) / Valley / River / Lake and marsh / Coast	
Area (enter only in case of isolated forest or grassland)		ha
Designation of protection area	National park, wildlife protection area, temporarily closed hunting area, hunting prohibited area, no designation, unknown, (other) (	

Outline of course (Fill in either Forest course or Grassland course depending on the environment)

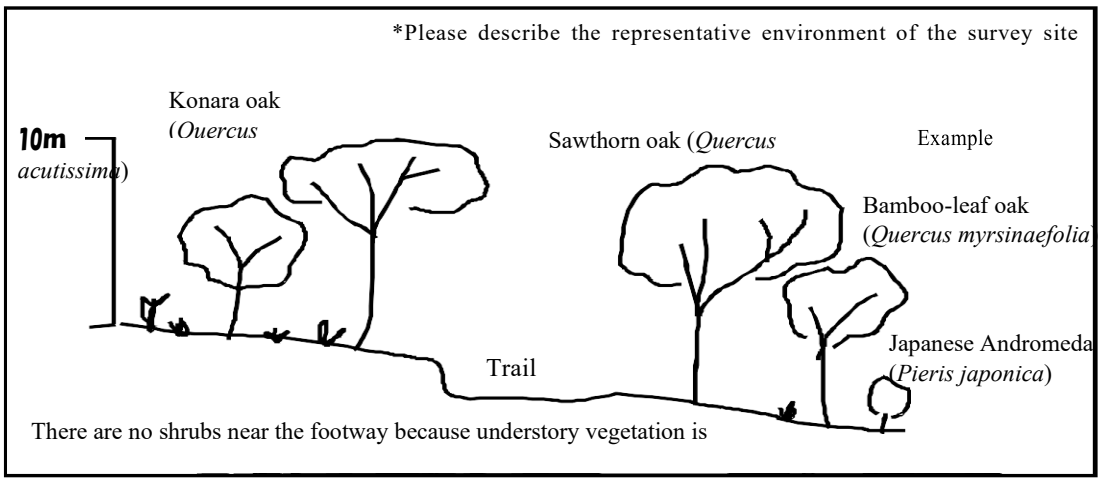
◆Forest course (Fill in once either in the breeding season or in the wintering season. However, fill in information on accumulated snow in the wintering season.)

Plant	1 Konara oak (Quercus serrata)	2 Sawthorn oak (Quercus acutissima)	3 Bamboo-leaf oak (Quercus myrsinaefolia)
Tree height	Under 0.5 m, 0.5-2 m, 2-5 m, (5-10 m), 10-15 m, over 15 m		
Accumulated snow	Full accumulated snow (10 cm, 10-30 cm, over 30 cm), partial accumulated snow, no accumulated snow		

* ◆Grassland course (Fill in both in the breeding season and in the wintering season. However, fill in information on accumulated snow in the wintering season.)

Plant	1	2	3
Vegetation height	Under 0.5 m, 0.5-2 m, 2-5 m		
Accumulated snow	Full accumulated snow (10 cm, 10-30 cm, over 30 cm), partial accumulated snow, no accumulated snow		

Diagram of cross-sectional surface of the environment (Fill in once either in the breeding season or in the wintering season.)



*For a vegetation survey, fill in a vegetation survey sheet with reference to Appendix "Vegetation survey method".

Method of investigating the species and number of birds

■ Necessary tools
Survey sheet "2. Record sheet for survey on the number and species of birds", drawing board, writing materials, and binocular

▼Guidelines for survey

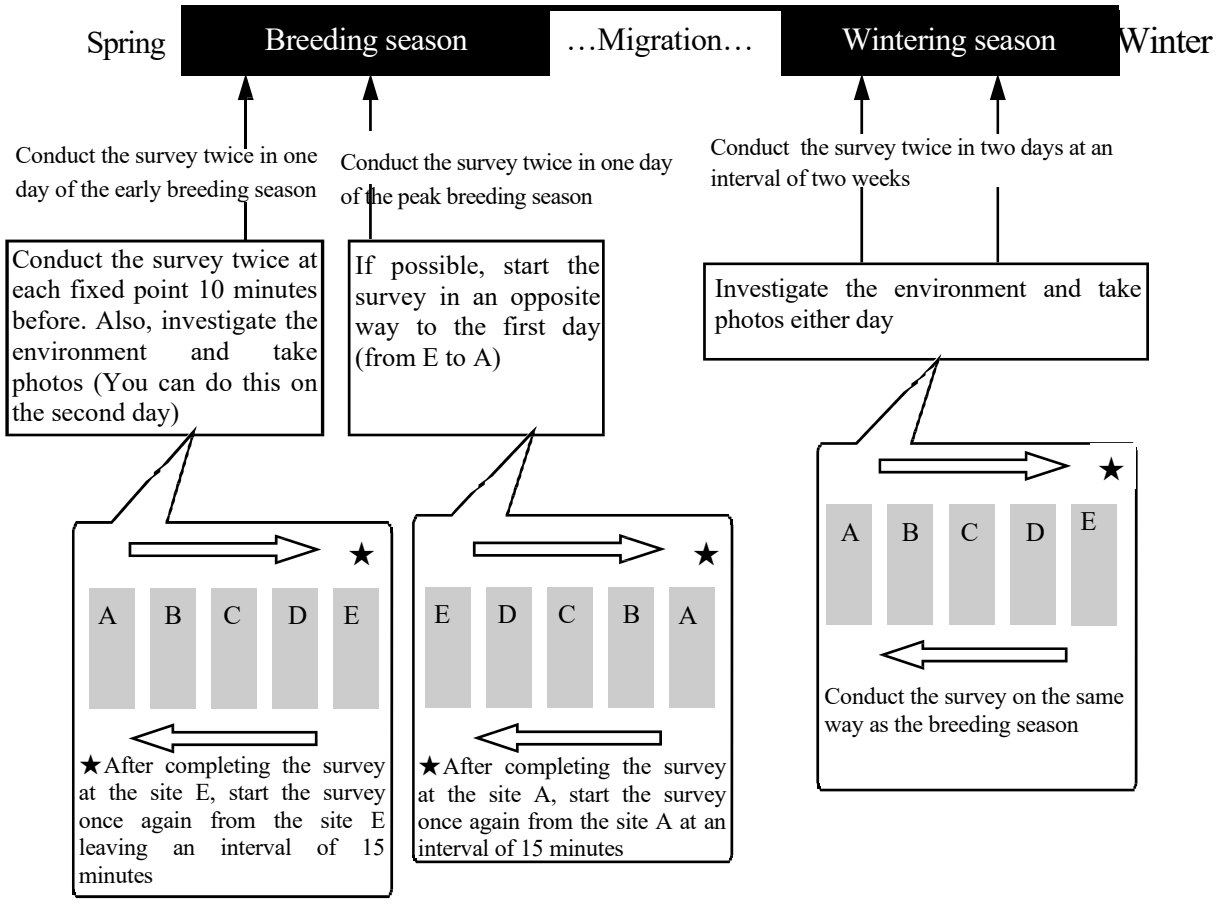
This survey is conducted two days as explained below, since some species cannot be recorded only in one day due to the difference in the period of migration. Please don't conduct a survey on a rainy or windy day.

Breeding season: A total of two days (one day in the early breeding season and another day in the peak breeding season when birds sing actively)

Wintering season: A total of two days (one day in which all winter birds are present and another day leaving two weeks or more after the first day)

- Survey each fixed point twice a day (See the following chart)
- The survey can be conducted in one day in cases where it is difficult to conduct it two days due to the distance, etc. (In this case, conduct the survey four times at each fixed point in one day)
- Conduct the survey at a time when birds are active (See the table in P.4).

■ Schedule of survey



▼Method of survey

- Conduct the survey for 10 minutes at each fixed point.

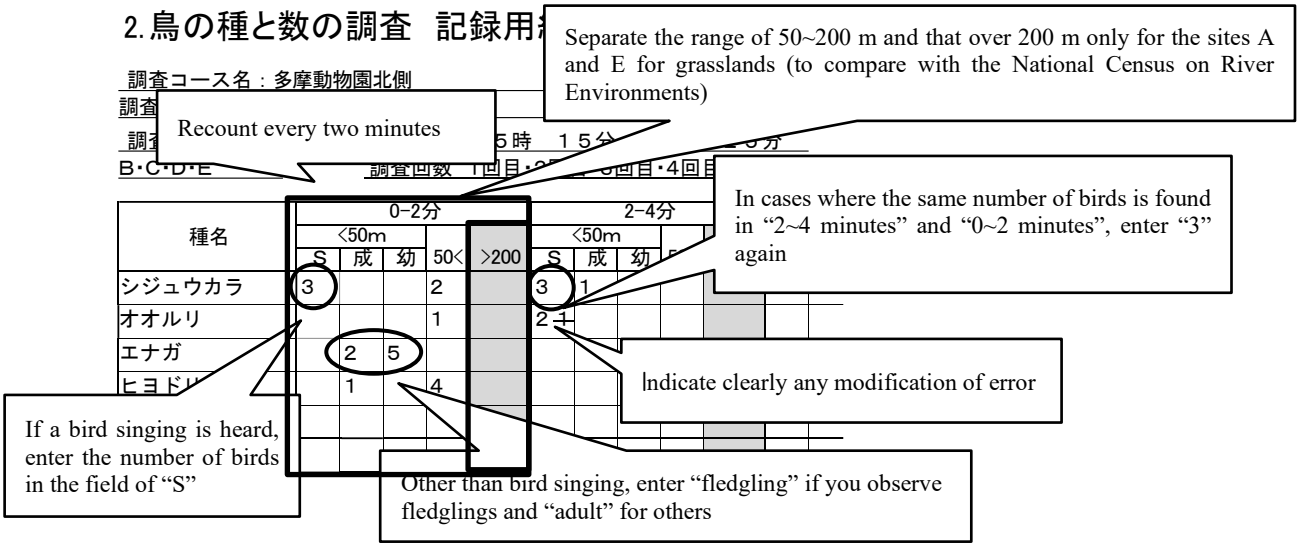
- In cases where a grassland survey is conducted on a dike, only the grassland (river) side should be surveyed.

- Record the species confirmed, the number of birds, and recording method every two minutes. Record data separately for the range within a radius of 50 m from the fixed point and for the farther range. In addition, at the sites A and E for grassland surveys, make records by separating data of the area within a radius of 50 m from the fixed point, 50~200 m, and farther. This is because birds within 200 m from the fixed sites are recorded by the National Census on River Environments, allowing us to compare the results.

- Bird singing can be heard more clearly in grasslands than in forests from a long distance, so please make sure to check the level of loudness of bird singing and the distance from birds when birds can be observed visually.

- Once the survey of each fixed point completes, take a rest about 15 minutes before starting the second round.

▼Example of entry to survey sheet



2. 鳥の種と数の調査　記録用紙：2. Record sheet for survey on the number and species of birds
調査コース名：多摩動物園北側：Name of survey course: North side of Tama Zoological Park
調査日時 2008年6月6日 5時15分~5時25分：Time and date of survey: June 6, 2008, 5:15~5:25
調査コース番号：Survey course number
天候：Weather
調査回数 1回目 2回目 3回目 4回目：Number of survey 1st 2nd 3rd 4th
0-2分 2-4分：0-2 minutes 2-4 minutes
種名：Name of species
シジュウカラ：Great tit (*Parus major*)
オオルリ：Blue-and-White flycatcher (*Cyanoptila cyanomelana*)
エナガ：Long-tailed tit (*Aegithalos caudatus*)
ヒヨドリ：Bulbul (*Hypsipetes amaurotis*)
成：Adult
幼：Fledgling

- Conduct a survey every two minutes. This means that you need to enter the number of birds if two minutes passed even if they are the same birds recorded in the first two minutes.

- Fill in a survey sheet in a way that the survey number and survey site can be identified clearly.
- As for birds that flew at a high altitude, record in the field of “over 50 m”.
- If any fledgling is found, enter it in the field of “fledgling” to investigate the number of adult birds.
- A monitoring survey aims to compare changes in a relative number of birds in one area. It is not necessary to look for are birds or record more birds than necessary.



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