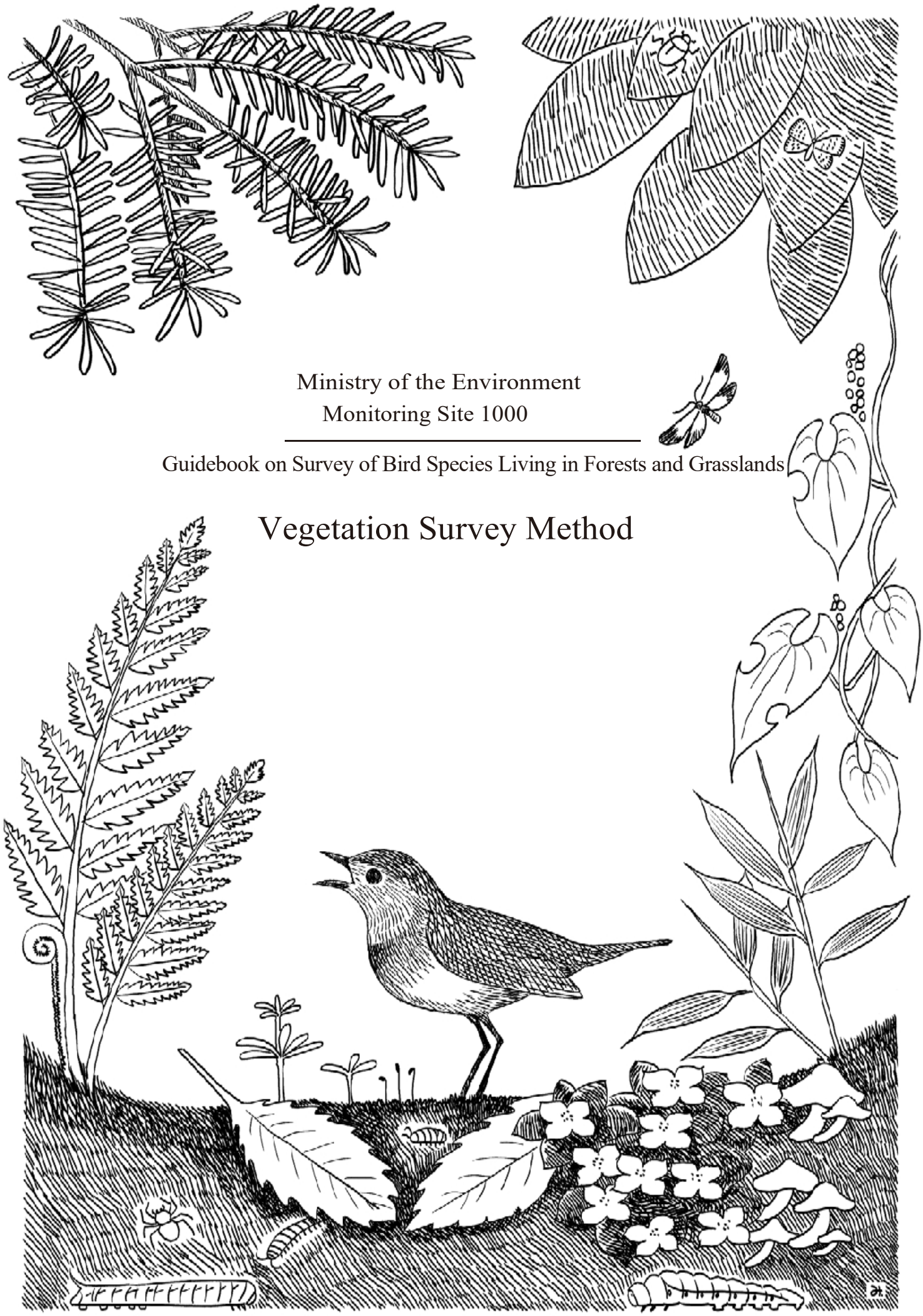
Ministry of the Environment
Monitoring Site 1000

Guidebook on Survey of Bird Species Living in Forests and Grasslands

Vegetation Survey Method



The Monitoring Site 1000 is the survey to monitor changes in the natural environment of Japan.

The survey of birds living in forests and grasslands includes simplified vegetation surveys to reveal changes in the status of habitat of birds and monitor changes in their growing environment.

It is possible to analyze the flat extension of vegetation in a survey site, because precise aerial photos and satellite photos have become available.

However, it is not possible to obtain information on the structure and tree height in a forest and the height of grass in a grassland from aerial photos.
Thus, the Monitoring Site 1000 vegetation survey aims to investigate vegetation mainly in the height direction.

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.

Note: Tables in this manual appear poorly formatted due to file constraints.
For accurate table content, please refer to the separate document:
https://www.biodic.go.jp/moni1000/manual/Table_Vegetation.pdf.

Vegetation survey method

▼Necessary tools

1. A topographical map including the past survey routes sent by the Secretariat (enlarged map of 1/25,000)
2. Survey sheets, writing materials
3. Camera (digital camera or film camera)

▼Types of vegetation survey

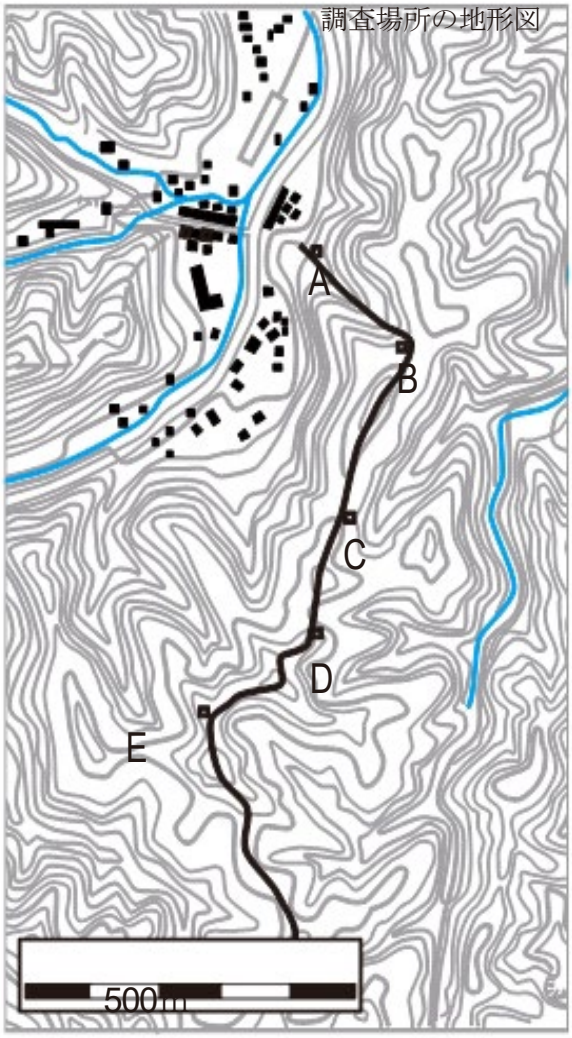
There are two types of vegetation survey; namely, forest vegetation survey and grassland vegetation survey. Since their survey methods are different, they will be explained separately in the next section and after.

▼ Period

The height and coverage (rate of area covered with leaves) of plants are investigated in a vegetation survey. Therefore, it should be conducted during the breeding season when leaves grow.

▼ Place

A vegetation survey should be conducted at the fixed points where a spot census survey was conducted.
This survey should be conducted at five fixed points.



P.3

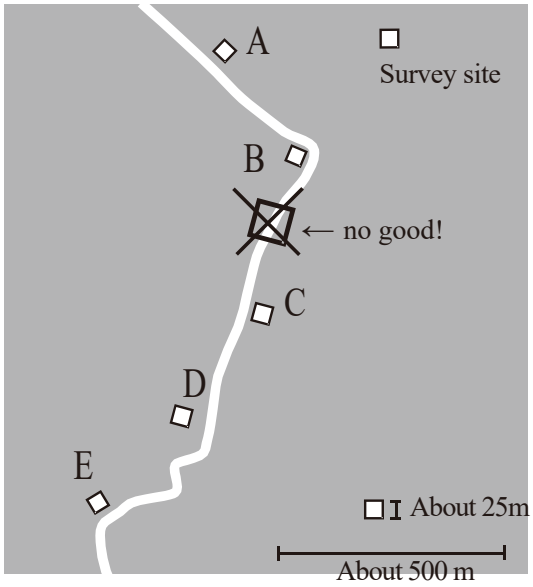
▼Photos of fixed points

Set fixed points to identify changes in forest and grassland environments and take photos of the same range in the same direction every time a survey is conducted. As for the photo shooting direction and targets, see the following and subsequent pages. In cases where photos were taken by a digital camera, enter information in the file name (survey course, survey site, time and date). In cases where photos were taken by a film camera, enter information on their back surface. Moreover, write down an arrow from the point where photos were taken on the topographical map to record the photo shooting direction.

Example of file name: 100336A1_20070524_0824.jpg

Forest survey method

▼ Method of determining a survey site



Set a survey site of about 25 m x 25 m in the same place as the fixed points where the spot census survey was conducted. However, a road is not suitable to conduct a survey, so set a survey site in forests near the road. The size of a survey site doesn't need to be too precise, because the coverage is shown in rate (%) and the results are not affected greatly by a slight change in area. Moreover, in cases where a fixed point is located on a slope, it is recommendable to set a survey site at a place where you can look down for easiness of survey.

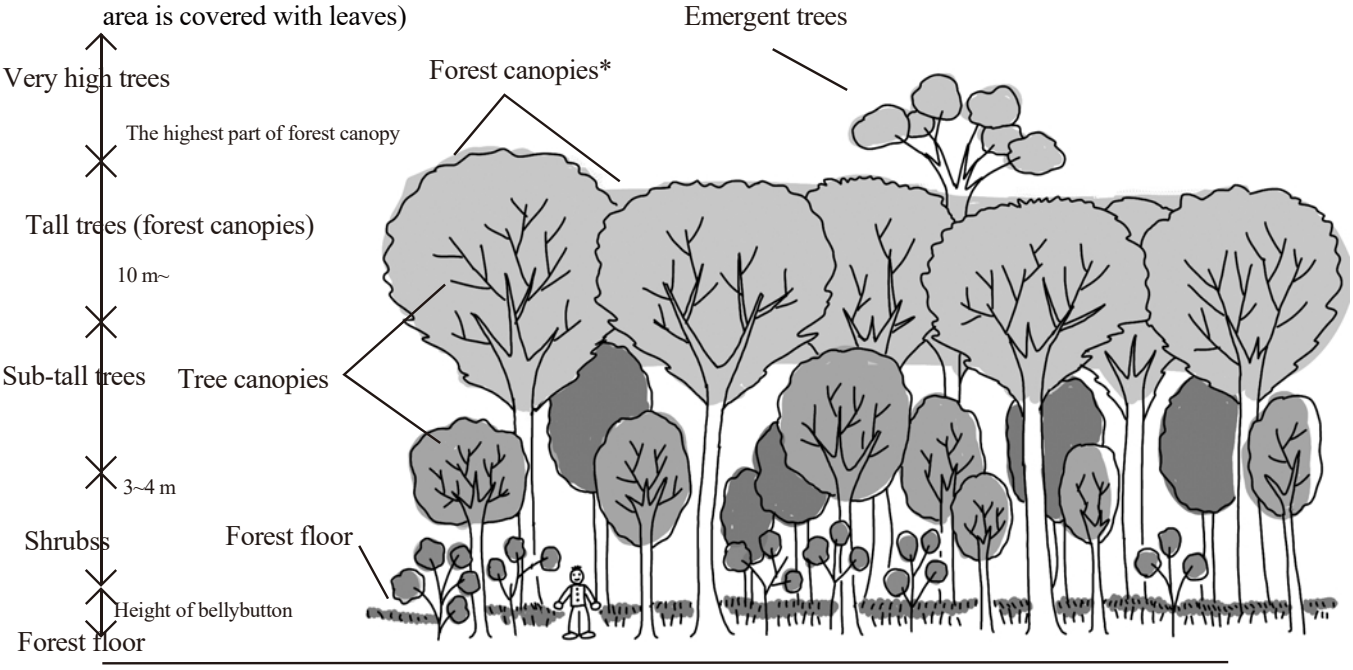
▼Method of investigation of vegetation

Firstly, enter the name of survey course, date, and names of investigators.

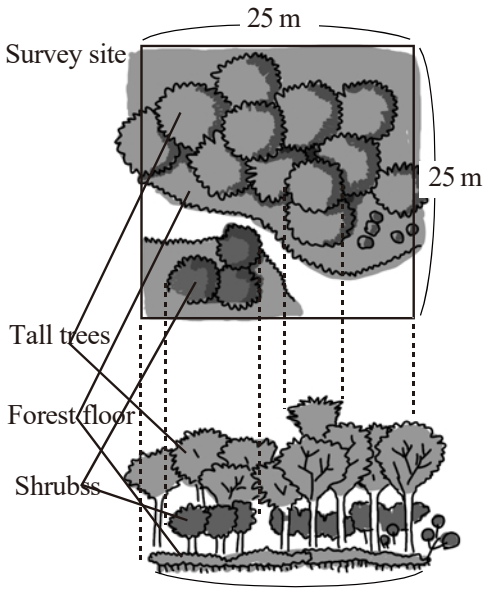
- Survey of coverage

Investigate the coverage of plants in the survey area by height (Refer to the figure below).

Record the coverage of forest floor, shrubs layer, sub-tall tree layer, tall-tree layer, and very tall-tree layer (how much the area is covered with leaves)



*A forest canopy is a tree canopy layer covering the highest part of forests.



The total of coverage exceeds 100%, because different layers overlap like forest floor and shrubs layer and forest floor and tall tree layer.

1. Record the area covered by plants as an order of coverage. Enter the applicable rank with the numbers (0~5).

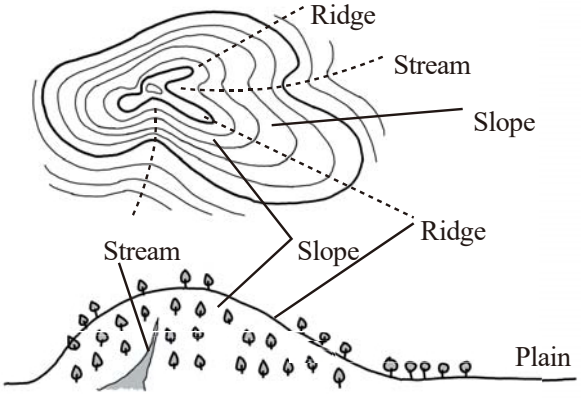
Rank 0 = No vegetation
Rank 1 = 1～10%
Rank 2 = 10～25%
Rank 3 = 25～50%
Rank 4 = 50～75%
Rank 5 = Over 75%

2. Then, number the applicable vegetation types in the ascending order from 1. In cases where two or more vegetation types have the similar area, put the same rank without determining which is larger. There may be no sub-tall-tree layer in forests where the tree height is low. Moreover, it is not necessary to enter very-tall trees in cases where there is no tree protruding from forest canopies.

Survey site A

Layer	Rank of coverage	Vegetation type (enter the numbers in the brackets in order of area) Tree species (if identifiable)
Forest floor (at the waist height)	4	(1) ササ, (2) grass, ( ) DBT, ( ) EBT, (4) ENT, (3)
Shrubs layer (twice as high as the height)	4	(1) ( ) ササ, (3) ( ) 落広, (2) ( ) 常広, ( ) 常針, ( ) 落針
Subcanopy layer (~10 m)	3	(1) 落広, (3) 常広, (2) 常針, ( ) 落針, ( )竹
High tree layer (~forest canopy)	3	(1) 落広, (2) 常広, ( ) 常針, ( ) 落針, (2) 竹
Emergent layer (emergent tree)	1	( ) 落広, ( ) 常広, (1) 常針, ( ) 落針, ( )竹
Height of forest canopy		~10 m, 10~15 m, 15~20 m, 20~30 m, or higher
Height of emergent tree		~10 m, 10~15 m, 15~20 m, 20~30 m, or higher
Terrain		Slope / ridge / plain — Is there a stream? Y / N

DBT = Deciduous broadleaf tree
EBT = Evergreen broadleaf tree
ENT = Evergreen needle-leaved tree
DNT = Deciduous needle-leaved tree



- Survey of tree height

Circle the height of forest canopies and that of emergent trees.

- Survey of terrains

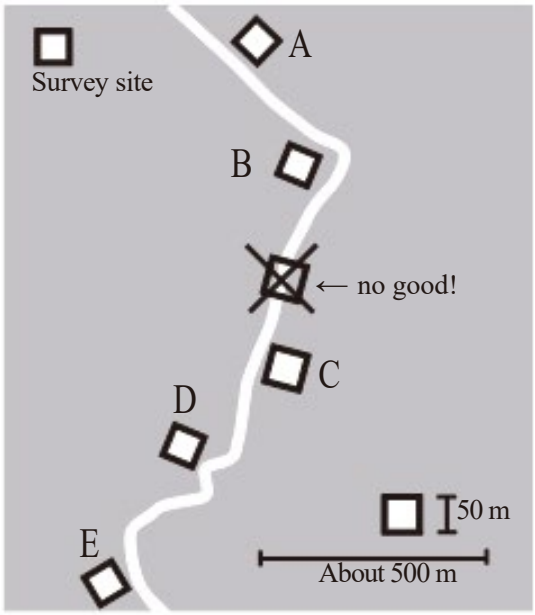
Enter a type of terrain (slope / ridge / plain) and if there is any stream.

- Photo shooting

Take photos of each survey site that reveal the characteristics of the top (forest canopies), in a downward direction (north in the case of plain), and forest layers with a digital camera, if possible, at a wide angle (in opposition to telephoto). See P.3 for how to submit photos.

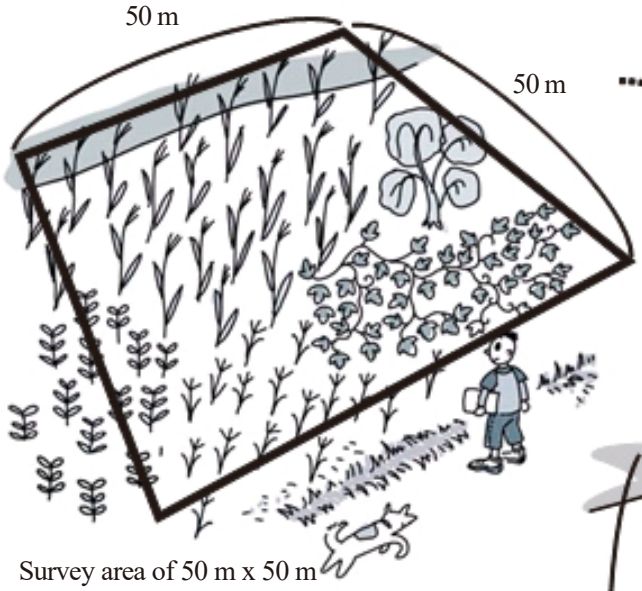
Method of grassland survey

▼How to determine a survey site



Set a survey site of about 50 m x 50 m in the same place as the fixed points for the spot census survey. However, a road is not suitable to conduct a survey, so set a survey site away from the road.

The size of a survey site doesn't need to be too precise, because the coverage is shown in rate (%) and the results are not affected greatly by a slight change in area. Moreover, since there is no visibility from a low place in grasslands, set a survey site at a high place (e.g. dike).



▼ Method of investigating vegetation

Firstly, enter the name of survey course, date, and names of investigators.

- Survey of coverage

1. Overlook the entire survey site and circle the applicable grassland type. Also, enter if there is any water area.

2. Enter the rate of area covered by plants or land use as a rank of coverage (0~5). Enter the applicable rank with the numbers (0~5).

Rank 0 = No vegetation
Rank 1 = 1～10%
Rank 2 = 10～25%
Rank 3 = 25～50%
Rank 4 = 50～75%
Rank 5 = Over 75%

3. Then, number the applicable vegetation types in the ascending order from 1. In cases where two or more vegetation types have the similar area, put the same rank without determining which is larger.

Survey sheet for grassland vegetation

草原のタイプ　湿性草原 ・ 乾燥草原 ・ 牧草地 ・ その他

水域の有無　河川 ・ 湖沼 ・ 海 ・ 水域なし

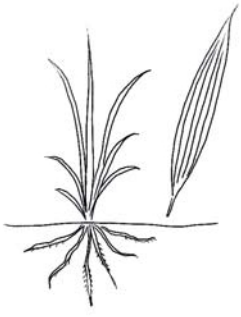
調査区 A		
区分	被度のランク	植生タイプ（カッコ内に広さ順に数字を記入）
ひざ下の草		（ ）アシ、（ ）単子葉：細い葉、（ ）双子葉：広い葉、（ ）ツル
へそ下の草		（ ）アシ、（ ）単子葉：細い葉、（ ）双子葉：広い葉、（ ）ツル
背丈程度		（ ）アシ、（ ）単子葉：細い葉、（ ）双子葉：広い葉、（ ）ツル
背丈以上	2	（ ）アシ、（1）単子葉：細い葉、（ ）双子葉：広い葉、（1）ツル
	1	（ ）水田、（ ）畑地、（ ）その他（1）
DBT = Deciduous broadleaf tree EBT = Evergreen broadleaf tree DNT = Deciduous needle-leaved tree ENT = Evergreen needle-leaved tree 裸地	3	（1）落広・常広・落針・常針・竹　～10m ・～15m ・～20m ・ 20m以上
水域		地表面の水　有 ・ なし ・ 不明
	1	
	1	

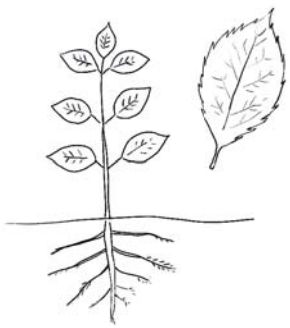
Monocot plant: Leaf strings are not split in the middle and are lined

Dicot plant: Leaf strings are split in the middle and form a mesh pattern

- Photo shooting

Take photos of each survey site that reveal the characteristics of the top (forest canopies), in a downward direction (north in the case of plain), and forest layers with a digital camera, if possible, at a wide angle (in opposition to telephoto). See P.3 for how to submit photos.





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