

June 2022

Toyama prefecture, Japan

Biological seasonal survey in Northeast Asia 2022

Procedure (implementation guideline)

1. Objectives

The objective of this project is raising public awareness on decarbonized society, through surveys and study sessions focusing on the "biological season " where we can feel the impact on climate change closely.

2. Target organisms and event

The organisms to be observed are those that are widely distributed around the living area of the region and that are suitable for knowing the delay and advance of the seasons in the area.

Since it is difficult to observe using organisms that commonly inhabit the entire Northeast Asia, the **surveyor (or each municipality) selects the organisms that are familiar to each region and can be observed for a long period of time.**

For reference, the table below lists the event that are widely distributed in Japan. With reference to these, the survey operator (or each municipality) is requested to arbitrarily select the survey target.

Type	Events						
	Organisms	flowering	full bloom	Autumn leaves	fallen leaves	first looking	first buzzing
Plant	<u>Spring</u> Cherry blossoms	○	○				
	<u>Summer</u> Hydrangea	○					
	<u>Autumn</u> Maple			○	○		
Animal	<u>Spring</u> Swallow					○	
	<u>Spring</u> ~ <u>Summer</u> Butterfly					○	
	<u>Summer</u> cicada						○
	<u>Autumn</u> Dragonfly					○	
	<u>Spring</u> <i>Plecoglossus altivelis</i> * run up to river					○	

3. Specific survey method for each species

Biological seasonal survey is conducted visually or hearing, and all surveys are conducted on a daily basis.

The survey method of each organism is defined below.

(1) Cherry blossoms

- ① Select one cherry tree that will be continuously observed for a long period of time(= sample tree).
- ② Observe the flowering date and the full bloom date.
 - The day when 5 or 6 flowers bloom on the sample tree is defined as the flowering date.
 - The day when about 80% or more of the flowers are in bloom on the sample tree is defined as the full bloom date.



flowering date



full bloom date

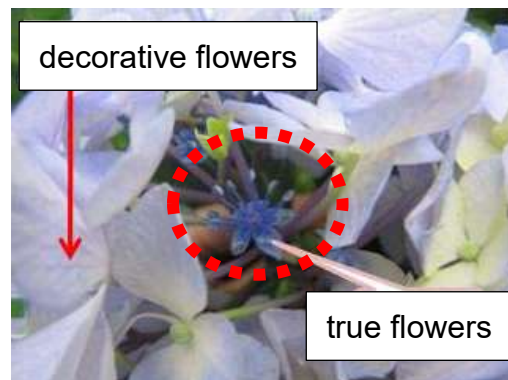
(2) Hydrangea

- ① Select one Hydrangea tree that will be continuously observed for a long period of time(= sample tree).
- ② Observe the flowering date.

The day when 2 or 3 “true flowers” in the decorative flowers of the sample tree bloom is defined as the flowering date.



Hydrangea(whole)



True flowers

(3) Maple

- ① Select one Maple tree that will be continuously observed for a long period of time(= sample tree).
- ② Observe the Autumn leaves and the fallen leaves.
 - Autumn leaves date is the first day when most of the sample tree turn red, and the green color is hardly recognized.
 - Fallen leaves date is the first day when about 80% leaves of sample tree is fallen.



before autumn leaves



autumn leaves date



Fallen leaves date

(4) Swallow

- ① Select a location (area) that can be continuously observed a long period of time.
- ② Observe the first looking date. The first looking date is the day when you see the swallows that came to your region.



Swallow (whole)



swallow nesting

photo source : UNESCO school web site

(<https://www.unesco-school.mext.go.jp/network/external-programs/tsubame/>)

(5) Butterfly

- ① Select a location (area) that can be continuously observed a long period of time.

- ② Observe the first looking date. The first looking date is the day when winter is over and the butterfly is seen for the first time.



example) *Pieris rapae*



Papilio machaon

(6) Cicada

- ① Select a location (area) that can be continuously observed a long period of time.
- ② Observe the first buzzing date. The first buzzing date is the day when you first hear the cicada buzzing.



example)
Graptopsaltria nigrofuscata



Meimuna opalifera



Hyalessa maculaticollis

(7) Dragonfly

- ① Select a location (area) that can be continuously observed a long period of time.
- ② Observe the first looking date. The first looking date is the day when you first see the dragonfly.



example)
Sympetrum frequens



Orthetrum albistylum

photo source : <http://www.sanmondatsakura.ne.jp/kontyu/kontyu.htm>

(8) *Plecoglossus altivelis* * run up to river

- ① Select a location (area) that can be continuously observed a long period of time.
- ② Observe the first looking date. The first looking date is the day when winter is over and you first see the *Plecoglossus altivelis* at the river from the sea area.



Plecoglossus altivelis
(Adult fish)



(Juvenile fish)



running up to river

photo source :

upper left : <https://www.cbr.mlit.go.jp/tenjyo/think/creature/fish.html>

lower left : https://www.thr.mlit.go.jp/noshiro/kasen/ayu/ayu_main_kako.html

right : http://www.cgr.mlit.go.jp/hinogawa/river/kataru/pdf/getheart15_0203.pdf

4. Report and view survey results

The results of the seasonal biological observations will be reported by the web application “iNaturalist”. To use this app, a device such as smartphone, tablet or PC is required.

(1) Install of “iNaturalist”

Install the web application "iNaturalist" on your smartphone, tablet, etc.

Class	iOS version (iPhone, iPad)	Android version
① For getting the app	 to App Store	 to Google Play
② How to install/use (manual)	 to NPEC website	 to NPEC website

* Refer [Appendix 5](#)

(2) View survey results

The collected survey results can be viewed as an observation map from the following Code or URL.

<https://www.inaturalist.org/projects/biological-seasonal-survey-in-the-northeast-asia-near-environmental-project>



5. Summary of survey results

- The survey results are stored on the “iNaturalist” app.
- In the future, when surveys are carried out in each region based on this project over a long period of time and a considerable amount of data is accumulated, the situation of climate change can be easily grasped visually, such as by compiling the secular change of the biological season in a graph.

- We will upload timely the information of this project to NPEC website
<https://www.npec.or.jp/bioseason/>
- Note that, you can view not only the results of this project, but also the organisms that are observed at all of the world in “iNaturalist”.

6. Precautions for survey

- Take all possible measures against heat stroke and COVID-19 infection.
- Be careful of accidents and injuries during the survey, and take pictures and record audio within a reasonable range, such as keeping away from restricted areas and dangerous place.
- note that posted photos are treated as public data in principle. Also, please consider personal information such as those that do not show people or the front page of personal home.
- The web application is free of charge. But the communication equipment, charges, etc. required to download and use the application will be borne by the surveyor.

7. To all the persons in charge of each municipality (requests)

- Please inform elementary and junior high schools and extracurricular activity clubs of this project, and cooperate so that the survey will be actively carried out within your municipality.
- The purpose of this project is to promote recognizes the problem of climate change, which is difficult to grasps one’s own, by “noticing” the climate change through the seasonal changes of the living organisms around us, and recognizes it as a more familiar problem, and that the same time, shifts to an environment-friendly lifestyle that can be practiced at home. Therefore, before and after the field survey, please consider holding a “study session” to explain the current state of climate change, its impact on the environment and organisms, and countermeasure.
- You can use Appendix2, 3 as the materials of “study session”.
- Please report the outline of survey/study session held in your municipality to the following parson in charge, by using Appendix 6, by December 16, 2022 (Friday).
Parson in charge : NPEC MURASAWA (murasawa@npec.or.jp)
- Toyama prefecture will create a manual that will be used for a long time after 2023 by collecting information such as issues and images from each municipality. The manual will be provided to each municipality.