Name

International Sustainable Development Studies Institute
สถาบันการศึกษาการพัฒนาที่ยั่งยืนนานาชาติ

Experiential Learning Workbook

Political Ecology of Forests: People and Natural Resources

Fall Semester, 2021

Table of Contents

Forest Flora and Fauna Survey

The goal of this activity is to develop familiarity with several forest species, both flora (plants and trees) as well as fauna (animals, including birds). **Identify and gather data on 6 plant species (at least 3 of these should be trees) and 2 animal species — 8 total.** These should be thoroughly described, bringing together information from multiple, cited sources.

Forest Survey Summary List

Species Summary List			
Species #	Species Name	Species Type	Environment
1		❑ Plant ❑ Tree ❑ Animal	
2		❑ Plant ❑ Tree ❑ Animal	
3		❑ Plant ❑ Tree ❑ Animal	
4		❑ Plant ❑ Tree ❑ Animal	
5		❑ Plant ❑ Tree ❑ Animal	
6		❑ Plant ❑ Tree ❑ Animal	
7		❑ Plant ❑ Tree ❑ Animal	
8		❑ Plant ❑ Tree ❑ Animal	
9		❑ Plant ❑ Tree ❑ Animal	
10		❑ Plant ❑ Tree ❑ Animal	

Species 1 Information and Description

Common Name: _____

Scientific Name: _____

Thai Name: _____

Type of organism: ❑ plant ❑ tree ❑ animal

Sketch

Behavior/Habitat

Location(s) observed

Ecological Role

Cultural significance — if any (food/use/economic value/other)

Species 2 Information and Description

Common Name: _____

Scientific Name: _____

Thai Name: _____

Type of organism: ❑ plant ❑ tree ❑ animal

Sketch

Behavior/Habitat

Location(s) observed

Ecological Role

Cultural significance — if any (food/use/economic value/other)

Species 3 Information and Description

Common Name: _____

Scientific Name: _____

Thai Name: _____

Type of organism: ❑ plant ❑ tree ❑ animal

Sketch

Behavior/Habitat

Location(s) observed

Ecological Role

Cultural significance — if any (food/use/economic value/other)

Species 4 Information and Description

Common Name: _____

Scientific Name: _____

Thai Name: _____

Type of organism: ❑ plant ❑ tree ❑ animal

Sketch

Behavior/Habitat

Location(s) observed

Ecological Role

Cultural significance — if any (food/use/economic value/other)

Species 5 Information and Description

Common Name: _____

Scientific Name: _____

Thai Name: _____

Type of organism: ❑ plant ❑ tree ❑ animal

Sketch

Behavior/Habitat

Location(s) observed

Ecological Role

Cultural significance — if any (food/use/economic value/other)

Species 6 Information and Description

Common Name: _____

Scientific Name: _____

Thai Name: _____

Type of organism: ❑ plant ❑ tree ❑ animal

Sketch

Behavior/Habitat

Location(s) observed

Ecological Role

Cultural significance — if any (food/use/economic value/other)

Species 7 Information and Description

Common Name: _____

Scientific Name: _____

Thai Name: _____

Type of organism: ❑ plant ❑ tree ❑ animal

Sketch

Behavior/Habitat

Location(s) observed

Ecological Role

Cultural significance — if any (food/use/economic value/other)

Species 8 Information and Description

Common Name: _____

Scientific Name: _____

Thai Name: _____

Type of organism: ❑ plant ❑ tree ❑ animal

Sketch

Behavior/Habitat

Location(s) observed

Ecological Role

Cultural significance — if any (food/use/economic value/other)

Species 9 Information and Description

Common Name: _____

Scientific Name: _____

Thai Name: _____

Type of organism: ❑ plant ❑ tree ❑ animal

Sketch

Behavior/Habitat

Location(s) observed

Ecological Role

Cultural significance — if any (food/use/economic value/other)

Species 10 Information and Description

Common Name: _____

Scientific Name: _____

Thai Name: _____

Type of organism: ❑ plant ❑ tree ❑ animal

Sketch

Behavior/Habitat

Location(s) observed

Ecological Role

Cultural significance — if any (food/use/economic value/other)

Forest Ecological Field Surveys

During this course you will be using ecological field survey methods in several different and distinct ecosystems:

- Natural forest
- Upland fields under cultivation
- Fallow swidden fields

In the SITE DESCRIPTION note which ecosystem you are studying.

Biodiversity survey: The purpose of the biodiversity survey is to learn about all of the diversity of life (flora and fauna) in a specific area. The goal is to understand the **number** of **different** species in the designated area. The goal is to identify as many different species as possible in the area.

Community study: The purpose of a community study is to look in-depth at a **specific area** and note the species diversity as well as **map the species** within a bounded area. The goal is to identify and count the number of **different species** as well as the **numbers of individuals** of that species in the area.

Transect survey: A transect is a survey along a line in a designated area. The purpose of the transact is to understand **diversity**, **abundance**, and **distribution** along the transect line. The goal is to map out along the line, noting scale/distance in total, as well as where individuals cross or are immediately adjacent to the transect.

Forest profile: The forest profile is a **vertical transect** looking specifically how different organisms (plans, trees, birds, insects, etc.) and diversity varies by height in the forest — from the forest floor to the top of the canopy. The goal is to map out along the vertical, noting scale/distance in total, as well as where individuals occur along this vertical line.

Some of the ecological field surveys will be conducted in multiple locations to allow for comparison and a deeper understanding of the ecological processes at work.

Biodiversity Surveys

Survey #1 Location: _____

Survey #2 Location: _____

Survey #3 Location: _____

Survey #4 Location: _____

Survey #5 Location: _____

Survey #6 Location: _____

Biodiversity Survey # 1

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Species	Number	Habitat	Notes

Biodiversity Survey # 2

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Species	Number	Habitat	Notes

Biodiversity Survey # 3

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Species	Number	Habitat	Notes

Biodiversity Survey # 4

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Species	Number	Habitat	Notes

Biodiversity Survey # 5

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Species	Number	Habitat	Notes

Biodiversity Survey # 6

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Species	Number	Habitat	Notes

Community Studies

Study #1 Location: _____

Study #2 Location: _____

Study #3 Location: _____

Study #4 Location: _____

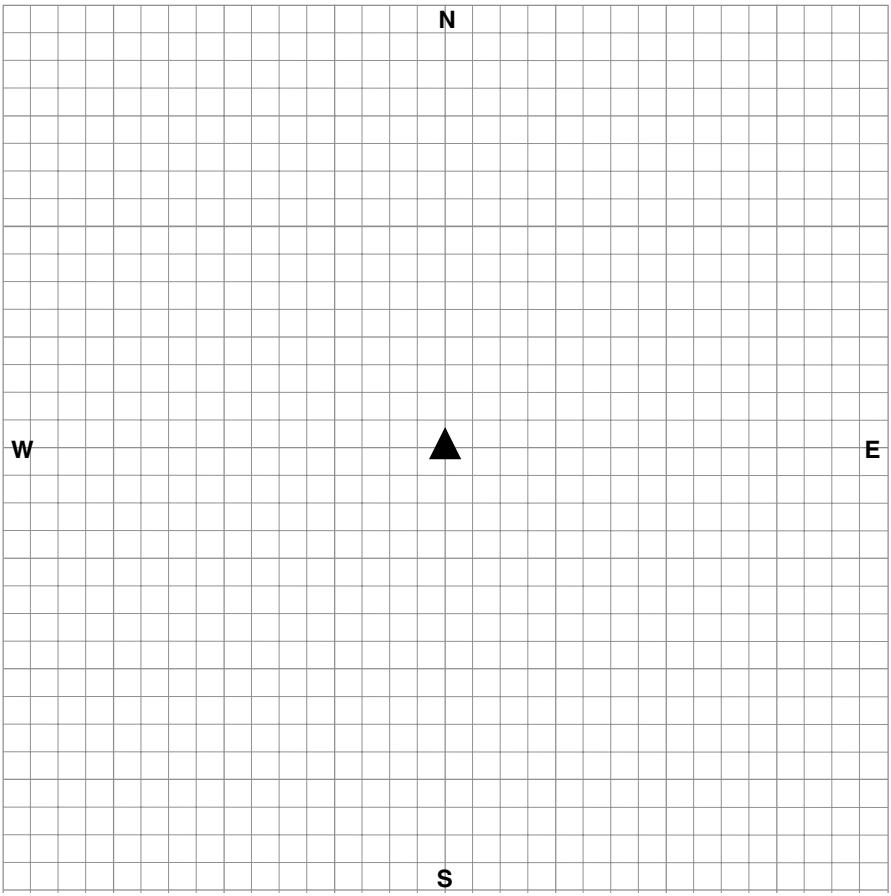
Study #5 Location: _____

Study #6 Location: _____

Community Study # 1

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

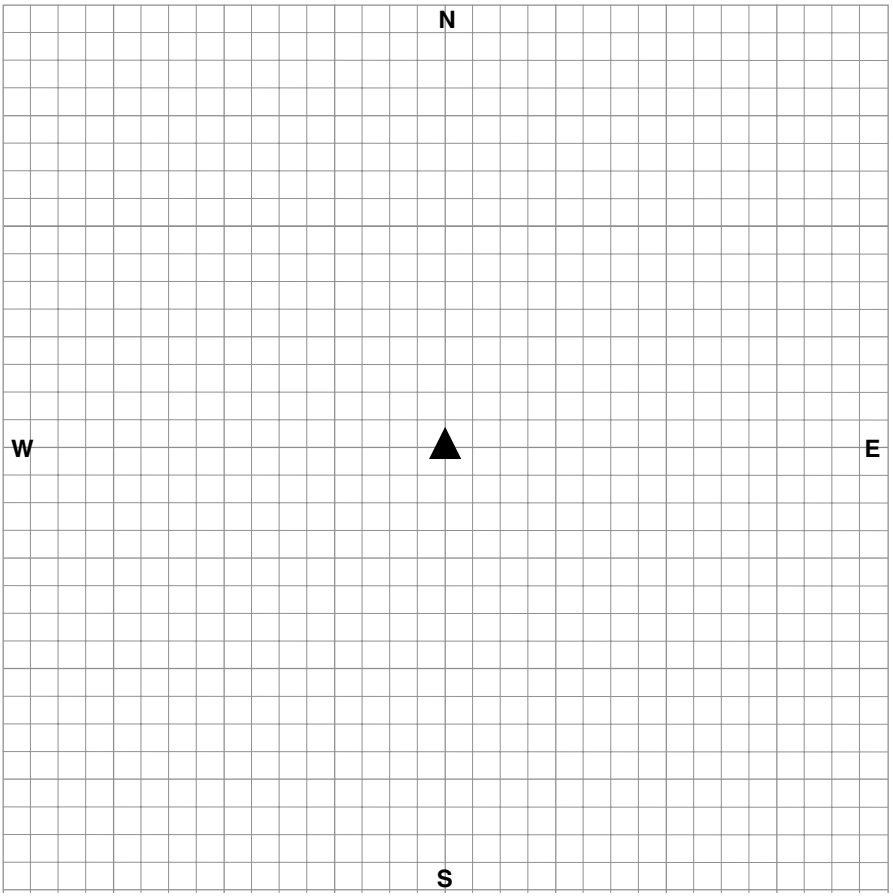
- Map and identify distribution of organisms within the area studied.
- Note the scale on your map (1 large square = 1 meter or 2 = 1 meter, etc.)
- Orient towards North at the top, and record the scale between the heavy grid lines.



Community Study # 2

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

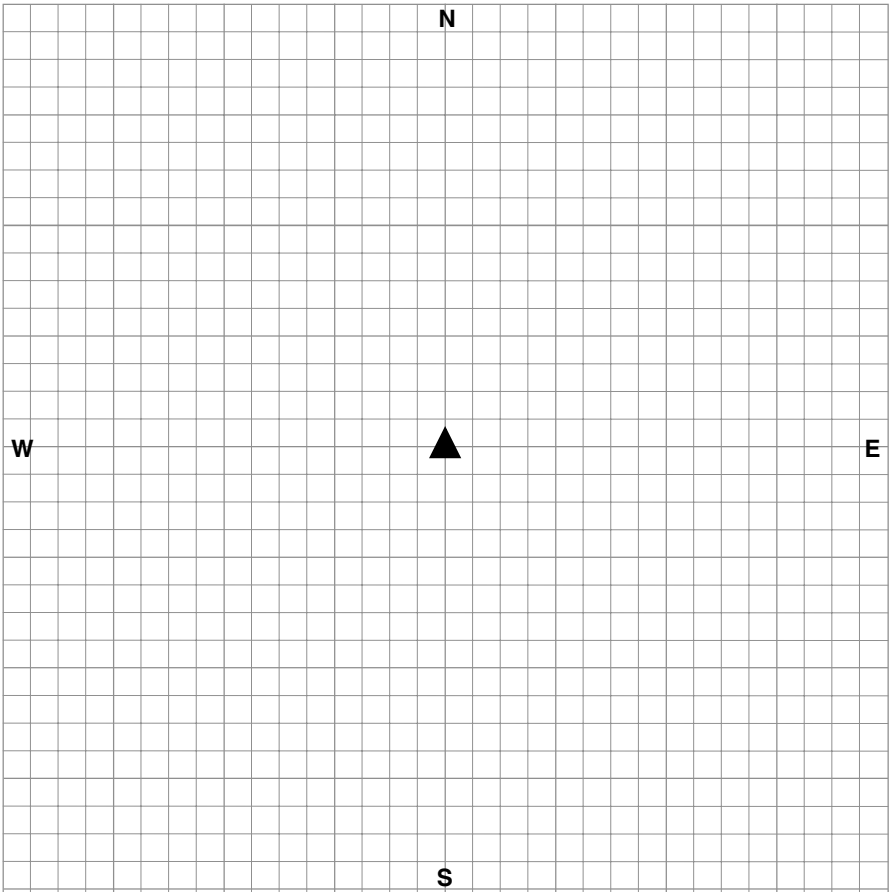
- Map and identify distribution of organisms within the area studied.
- Note the scale on your map (1 large square = 1 meter or 2 = 1 meter, etc.)
- Orient towards North at the top, and record the scale between the heavy grid lines.



Community Study # 3

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

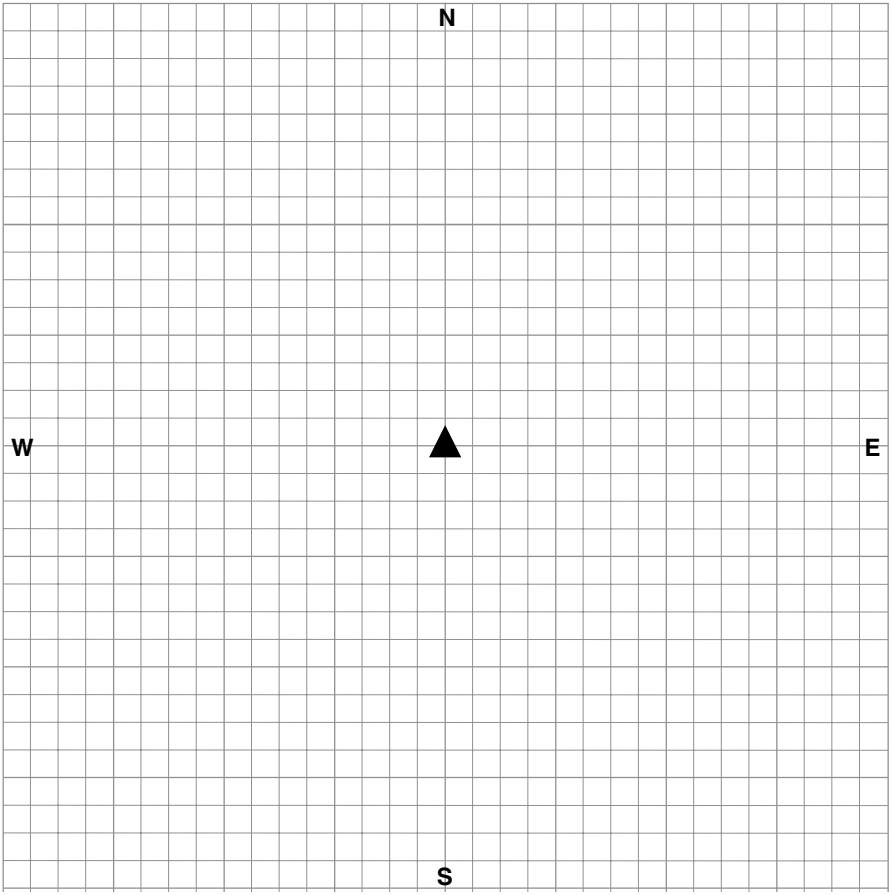
- Map and identify distribution of organisms within the area studied.
- Note the scale on your map (1 large square = 1 meter or 2 = 1 meter, etc.)
- Orient towards North at the top, and record the scale between the heavy grid lines.



Community Study # 4

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

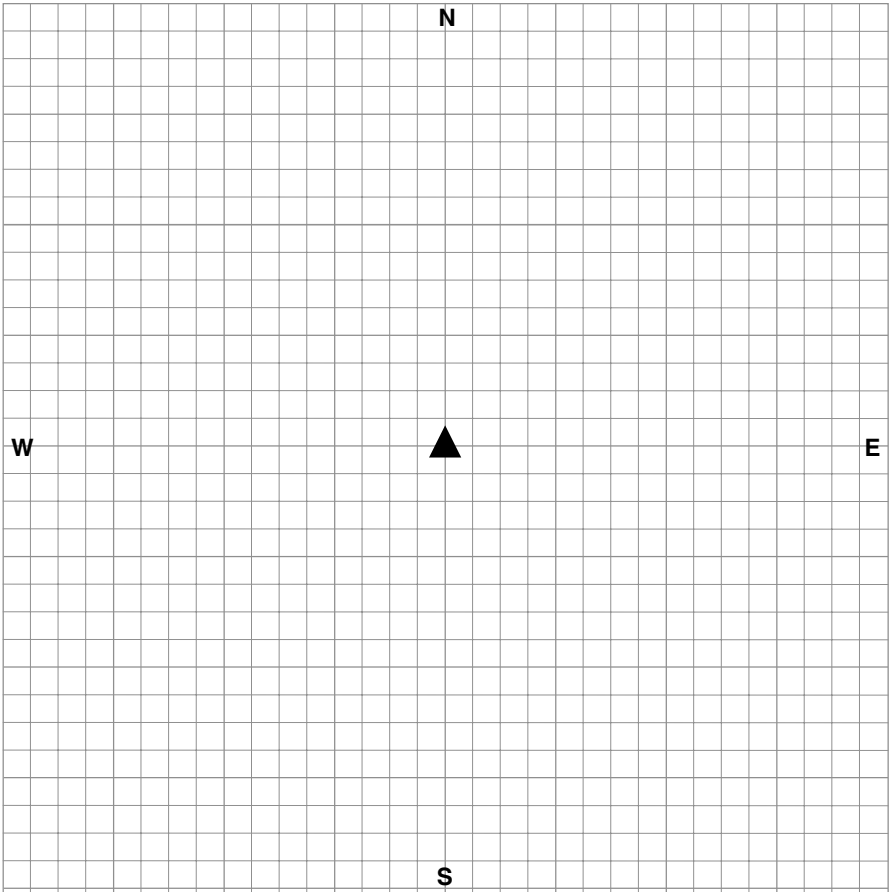
- Map and identify distribution of organisms within the area studied.
- Note the scale on your map (1 large square = 1 meter or 2 = 1 meter, etc.)
- Orient towards North at the top, and record the scale between the heavy grid lines.



Community Study # 5

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

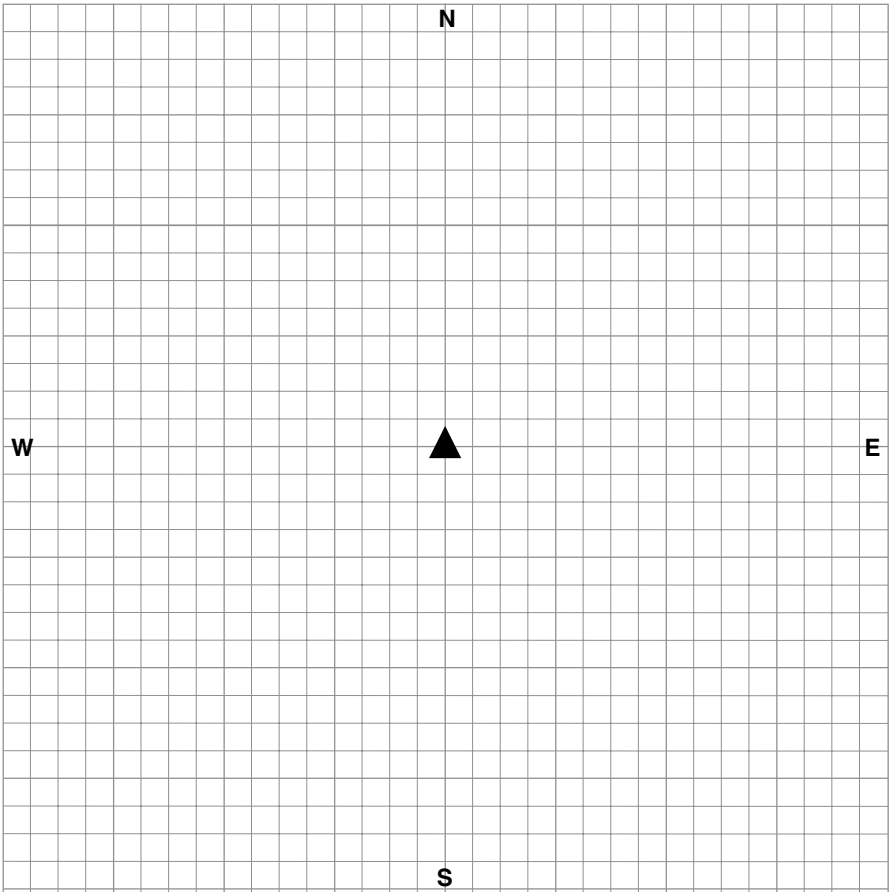
- Map and identify distribution of organisms within the area studied.
- Note the scale on your map (1 large square = 1 meter or 2 = 1 meter, etc.)
- Orient towards North at the top, and record the scale between the heavy grid lines.



Community Study # 6

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

- Map and identify distribution of organisms within the area studied.
- Note the scale on your map (1 large square = 1 meter or 2 = 1 meter, etc.)
- Orient towards North at the top, and record the scale between the heavy grid lines.



Forest Transect

Forests are very diverse. One good way to capture this diversity is to complete a transect — a study of diversity along a specific line. For this activity you will use a 20 meter transect line to do your survey. Working in groups of 3-4 students:

- Place your transect line to capture maximum diversity
- Record all plants directly along the transect line
- Record any other organisms (insects, etc.) that you observe in and around your transect

Survey #1 Location: _____

Survey #2 Location: _____

Survey #3 Location: _____

Survey #4 Location: _____

Survey #5 Location: _____

Forest Transect 1

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Sketch of placement of transect line in context

List of plants along transect line

List of other organisms in/around transect line

Annotated map of transect line + height + tree name

Forest Transect 2

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Sketch of placement of transect line in context

List of plants along transect line

List of other organisms in/around transect line

Annotated map of transect line + height + tree name

Forest Transect 3

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Sketch of placement of transect line in context

List of plants along transect line

List of other organisms in/around transect line

Annotated map of transect line + height + tree name

Forest Transect 4

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Sketch of placement of transect line in context

List of plants along transect line

List of other organisms in/around transect line

Annotated map of transect line + height + tree name

Forest Transect 5

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Sketch of placement of transect line in context

List of plants along transect line

List of other organisms in/around transect line

Annotated map of transect line + height + tree name

Forest Profile Surveys

Survey #1 Location: _____

Survey #2 Location: _____

Survey #3 Location: _____

Survey #4 Location: _____

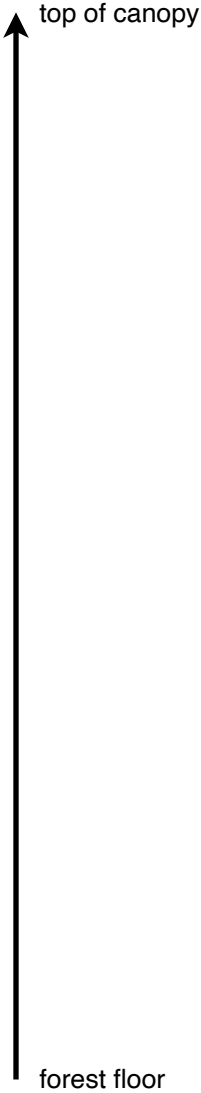
Survey #5 Location: _____

Forest Profile #1

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Forest Profile #2

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain



Forest Profile #3

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Forest Profile #4

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Forest Profile #5

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Traditional Weaving

Weaving and traditional clothing is an important part of Karen culture. The purpose of this activity is to learn more about weaving, how it fits into Karen culture, why it is important, and what role it plays in linking the culture and the local ecology.

1. Draw a sketch and annotate each step of the process of weaving.

2. For natural dyes, what are the origins of the colors used in weaving? How does this relationship to the forest shape and reinforce Karen culture?

3. Who weaves? Why? How is this important in this culture?

Rotational Farming

Upland rotational farming is a distinctive agriculture practice of the Karen. In the space below draw a diagram of the upland rotational farming system, annotating the times between fallow periods, as well as what is planted, and how the forest regenerates.

Upland Field Survey

The goal of this study is to understand the micro-ecology of upland fields. In the space below list the plants and food crops grown in the upland fields, and their relationship (if any) between them.

Stream health assessment

For this study we will be looking at the overall health of the stream in question. This will take into account the clarity of the stream flow, the number and diversity of insects in and around the stream, fish / crustaceans / amphibians, and flow.

Survey #1 Location: _____

Survey #2 Location: _____

Survey #3 Location: _____

Survey #4 Location: _____

Stream Assessment #1

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Turbidity / silt (rate from 0 / clear to 10 / opaque):

Flow (rate from 0 / still to 10 / fast):

Aquatic insects — identify the species and numbers

Fish / crustaceans / amphibians — identify the species and numbers

Assessment: How healthy is this stream? Why?

Stream Assessment #2

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Turbidity / silt (rate from 0 / clear to 10 / opaque):

Flow (rate from 0 / still to 10 / fast):

Aquatic insects — identify the species and numbers

Fish / crustaceans / amphibians — identify the species and numbers

Assessment: How healthy is this stream? Why?

Stream Assessment #3

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Turbidity / silt (rate from 0 / clear to 10 / opaque):

Flow (rate from 0 / still to 10 / fast):

Aquatic insects — identify the species and numbers

Fish / crustaceans / amphibians — identify the species and numbers

Assessment: How healthy is this stream? Why?

Stream Assessment #4

Date:	Time of day:
Coordinates:	Altitude:
Site description:	Weather: ❑ Clear ❑ Cloudy ❑ Rain

Turbidity / silt (rate from 0 / clear to 10 / opaque):

Flow (rate from 0 / still to 10 / fast):

Aquatic insects — identify the species and numbers

Fish / crustaceans / amphibians — identify the species and numbers

Assessment: How healthy is this stream? Why?

Altitude and forest types

In the space below draw a vertical profile of the typical forest zonation by altitude in a Northern Thai forest. Annotate with altitudes, places you've studies, and activities at different altitudes.

Market survey

Markets in upland rural areas sell forest products as well as cultivated crops. For the market survey, identify what is being sold, its origin, and if it is cultivated or gathered from the forest.

Item	Usage	Origin	Notes