

# Threats to Biodiversity

## OBJECTIVES

- ❖ Students identify threats to biodiversity by constructing a brainstorming web
- ❖ Students observe threats to biodiversity in or near Waipa
- ❖ Students create composite list of threats and discuss observations
- ❖ Students use imagery to understand implications and consequences of biodiversity threats
- ❖ Students summarize advanced concepts associated with threats to biodiversity
- ❖ Students devise action plans to deal with biodiversity threats

## SKILLS

Observation	Teamwork	Critical Thinking	Oral Presentation
Photography	Comparing & Contrasting	Time Management	Brainstorming

## Knowledge and Values Developed

- ❖ Short and long-term impacts of decision-making
- ❖ Appreciation for influence of threats on biodiversity
- ❖ Awareness of ecosystem services
- ❖ Understanding responsibility of humans towards their surroundings

# Threats to Biodiversity

## Activity 1

### Science Photography

Aloha fellow scientists! Today you will have an opportunity to be part of a team of science photographers on assignment in Waipa. Your job is to brainstorm with teammates to identify threats to biodiversity. After brainstorming you will go out into Waipa to document those threats in a photographic journal. Follow the directions below, if you have questions along the way go ahead and ask.

**Step 1:** Quickly divide the group into 2 teams of 5 scientists.

**Step 2:** Once in your teams, decide who will fill the following positions: Brainstorming engineer; Threat Identifier; Photograph Cataloger; Photographer and Team Coordinator. Job responsibilities are listed below.

Brainstorming Engineer (1 per team): The brainstorming engineer is responsible for coordinating and drawing the brainstorming web. Don't worry we will talk about brainstorming webs before doing the activity. A set of hints and guidelines for brainstorming is also attached.

Threat Identifier (1 per team): The threat identifier is responsible for leading the team through Waipa in order to find threats suggested during the brainstorming session. The threat identifier may point out subjects (for example, goat eating a plant) to be photographed.

Photograph Cataloger (1 per team): The photograph cataloger is responsible for keeping a log of the number of photographs taken, who took each photograph and creating a title for each picture taken. A log sheet will be provided.

Photographer (1 per team): The photographer is responsible for taking good pictures. For example, keeping the subject in focus. The photographer decides what to include in each picture and what to leave out. We will go over some hints for taking good pictures. **EACH TEAM MEMBER MUST HAVE A CHANCE TO TAKE SOME PICTURES.**

Team Coordinator (1 per team): The team coordinator is responsible for making sure that team members are doing their job. This person also makes sure that

each team member has had an opportunity to take some photos. Also the team coordinator keeps track of time. You will have **45 minutes** to complete this entire activity.

**Step 3:** Create your brainstorming web on the sheet of poster board provided in your tool kit. Helpful hints and guidelines to brainstorming webs have been attached in your packet. We will review brainstorming webs before doing this activity. Remember you are ultimately trying to identify threats to biodiversity.

**Step 4:** Go out into Waipa and find threats to biodiversity. Create your photographic journal of these threats.

**Step 5:** Regroup after 45 minutes to discuss your observations.

### **Tools Needed**

1 sheet of poster board

5 clipboards (1 per team member)

1 Single use camera (24 exposure 100-400 ASA)

1 wristwatch

2 binoculars

5 magnifying glasses

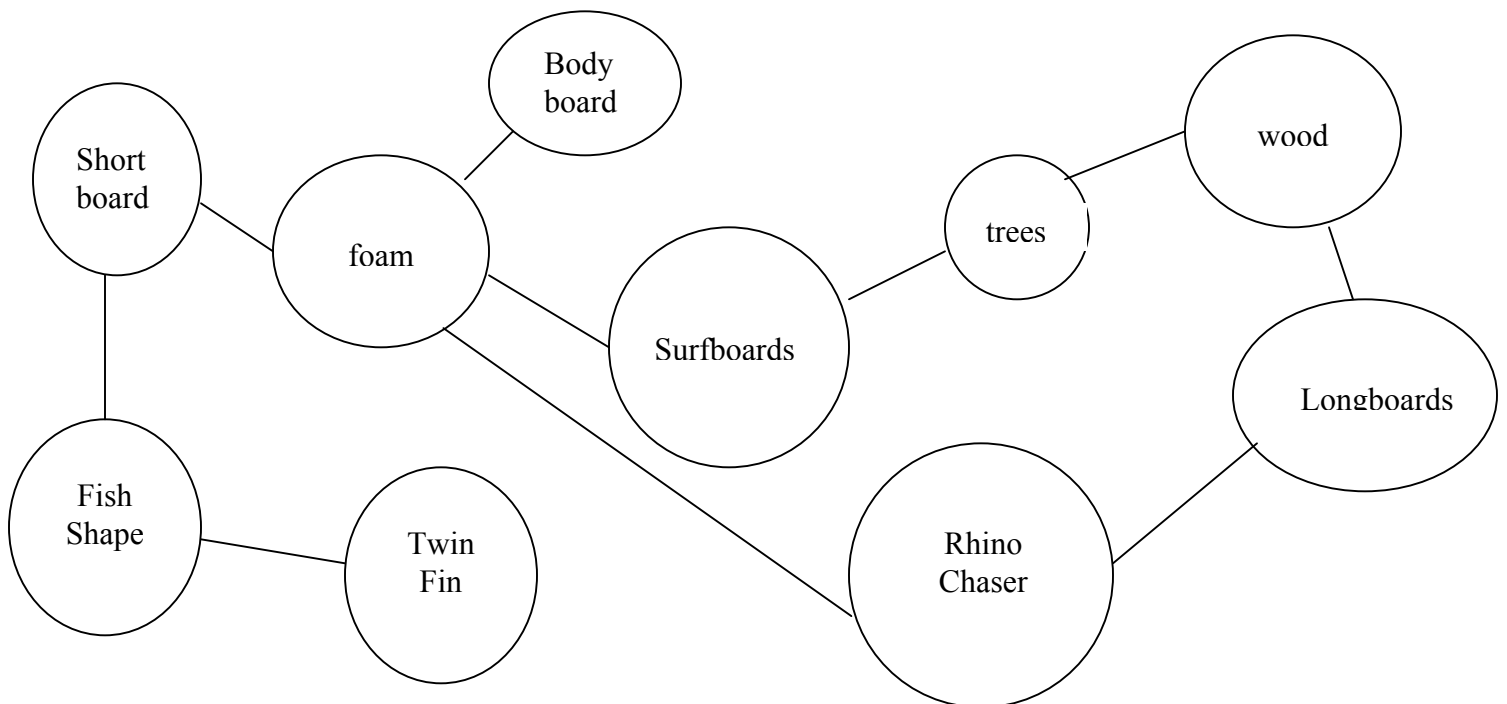
Assorted pens, markers or colored pencils

**Please List the Names of Your Team Members Below**

## Helpful Hints and Guidelines for Brainstorming Webs

- ❖ Do not judge your teammates suggestions or ideas
- ❖ Wild ideas **are** welcome
- ❖ There are no right or wrong answers
- ❖ Place your main question at the center of your page and circle (or whatever shape) it
- ❖ Place your ideas and suggestions around the main question and circle them
- ❖ Connect your ideas to the main question with lines
- ❖ Build on your previous ideas, connecting new ideas to previous ones
- ❖ Remember to keep in mind the main question

For example, a brainstorming web on types of surfboards may look like this.



## Photography Log

Picture Number	Title	Photographer
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On Assignment

# Threats to Biodiversity

## Activity 1

### Potential Discussion Questions

First create a composite list based on student observations. After the list is created begin the discussion. Here is only a small sample of the types of questions that may be asked.

Do you see any common threats in both lists? Explain.

Do you see different threats in both lists? Explain.

Are humans and threats to biodiversity connected in some way? Explain.

How would you define threats to biodiversity?

How do threats get established?

What happens as more threats occur?

Are threats important to know and identify? Why.

When did these threats arrive?

Do you think threats to biodiversity are a problem? Why or why not.

What if new threats arrive?

Can we do anything about threats to biodiversity? Explain.

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# Threats to Biodiversity

## Activity 2

Remember the analogy you did earlier today for biodiversity? My example was an analogy between cold wind and tiny needles. Remember an analogy is an agreement or similarity in some respect between things that are otherwise different. For this part of Activity 2, come up with analogy that deals with threats to biodiversity.

Write your analogy in the space provided.

Now, choose one of the threats we have discussed so far. Visualize yourself as this threat. Answer the following question by using an illustration or writing out your response. Provide your answers in the space provided or use the back of this sheet.

How did you get to Hawaii?

What types of problems are you causing for humans, plants and animals?

If left unchecked, what would you do?



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# Threats to Biodiversity

## Activity 2

In this part of Activity 2 you will be reading and analyzing articles on threats to biodiversity downloaded from various websites. Your team (2 scientists) will be responsible for

- ❖ Summarizing the article
- ❖ Highlighting the most important points in the article
- ❖ Creating a list of unfamiliar words or concepts
- ❖ Deciding if the content is acceptable
- ❖ Generating two questions to ask the instructor

You may use the front and back of this sheet.

# Threats To Biodiversity

## Activity 3

### Word Matching

Draw a line from the word in the right column to its definition in the left column.

1. Extinction	Regions that have great diversity of endemic species and at the same time have been significantly impacted by human activity
2. Indigenous	Responsible for sea level rise
3. Endemic	Excessive use of natural resources
4. Alien Species	Use of satellite imagery and aerial photography to generate maps of existing forest or vegetation cover
5. Endangered	Species occurring naturally in more than one geographic location
6. Habitat Conversion	No longer existing
7. Protected Area	Zone designated to safeguard species
8. Biodiversity Hotspot	Geographically restricted species
9. Habitat assessment	Pollution
10. Over-Exploitation	Plants and animals that are not native to a particular area and may have the ability to threaten biodiversity
11. Global Warming	Loss of natural areas to development and agriculture
12. Environmental Degradation	At risk of becoming extinct in the near future



In this part of Activity 3 imagine yourselves to be the first Polynesian navigators ever to see Kauai. What do you think you would see when you come ashore? Use books on native Hawaiian plants and animals plus your previous activities to illustrate a scene, or write a chant or poem, in the space below, of what Waipa looked like before biodiversity was threatened. You may even wish to create a dance! Be prepared to share your work with others.



## Threats to Biodiversity

### Activity 4

#### Action Plan to Conserve Biodiversity

Today we have talked a lot about threats to biodiversity and the impacts these threats have on humans and ecosystems as well. Can anything be done to save what remains? If you could do things to conserve biodiversity, what would you do? In this activity think of things you can do to reduce or prevent threats to biodiversity. Develop a personal action plan to help biodiversity from what threatens it. Use the space provided to write out your action plan. Be prepared to share your action plan with others.

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## Threats To Biodiversity Critical Thinking Exercise

Define "Threats to Biodiversity"

In other words threats to biodiversity means...

Give an analogy for threats to biodiversity.

Provide an illustration of threats to biodiversity in the space below.



## Directions for Critical Thinking Exercise

- 1) Try to come up with your best definition for threats to biodiversity. You can use terms that you learned in your readings or that were discussed in class.
- 2) Explain your definition using other words. For example if you were trying to explain this to your auntie, sister or brother.
- 3) Give an analogy for the concept of biodiversity. Remember an analogy is an agreement or similarity in some respect between things that are otherwise different. You may choose to start your analogy by saying... "Threats to biodiversity are like \_\_\_\_\_".
- 4) Provide an illustration for threats to biodiversity. An illustration can be a drawing, cartoon, graph or other visual display.