

# Natural Disturbances



**Real World Ecosystems  
Activity**  
Grade Level: 5-8

## Main Objectives

This activity is designed to give a quick overview of the central topic, disturbance in ecosystems. The backgrounder uses the example of the boreal forest to help learners understand the disturbance through local and very familiar context, and then it applies the concept of natural and human-caused disturbance to other ecosystems around the world.

## Learning Outcomes

By the end of this activity, learners will:

- List and describe several important forms of natural disturbance that affect Alberta's boreal forest
- Describe the role natural disturbance plays in the long-term health of the boreal forest
- Describe forms of human-caused disturbance that affect the boreal forest
- Describe forms of disturbance that occur naturally in other ecosystems around the world

## Length of Activity

1.5 hours

## Materials List

Natural Disturbances Backgrounder  
Natural Disturbances Learner Worksheet  
Natural Disturbances Learner Worksheet Answer Key

## Procedure

### Step 1: Backgrounder

- a. Provide the learners with copies of the Natural Disturbance Backgrounder. Allow the class to read the backgrounder individually or in groups.
- b. As learners are finishing up their reading, be sure to remind them to discuss amongst themselves the "Think About" questions at the end of the backgrounder.

### Step 2: Worksheet

- a. Provide the learners with the worksheet and have them answer the questions as a take-home assignment, or in class.
- b. Answers to the worksheet questions can be found in the answer key.

## Tips and Extensions

- Invite a forest ecologist to speak to your learners. Prepare them for the class visit by having them read the backgrounder. Have learners prepare questions in advance related to disturbance and how plants and animals are adapted to it.
- Examine aerial photographs of the west-central part of Alberta, especially in the Swan Hills, or west of Drayton Valley or Edson. Photos from these areas usually show the effects of multiple forms of resource development as seen from the air.
- Take a field trip to a forested area. Look for signs of disturbance, and observe how organisms such

as plants and animals have taken advantage of it. Look for openings in the forest canopy created by a fallen tree, signs of a previous fire (scars and scorched bark, old burn stumps), or evidence of logging or other human-caused disturbance.

## Comprehension

You may wish to test learners' comprehension with the following prompts and questions:

- What tree species are most common in the boreal forest? *White and black spruce, jackpine, lodgepole pine, aspen and balsam poplar, birch, and larch.*
- What are the main causes of forest fires? *This depends on the area. Around communities, it is most often humans. In remote areas, fires are most frequently the result of lightning strikes.*
- How old do you think the average tree is in the boreal forest? *About 70 years (the "fire return interval" is 70 to 80 years on average in the boreal forest, which means few trees are older than that, unless they are on islands in large bogs or other areas that somehow escape a fire.)*
- What is the link between human-caused climate change and natural disturbance in the forest? *Human-induced climate change is leading to warmer winters, which improve the survival of many insect pests of trees. Also, warmer drier summers (along with more insect-killed trees) mean that there is more fuel for forest fires.*
- What are some of the competing human activities that are contributing to disturbances in the boreal forest? *Oil and gas exploration and development, mining, recreation and tourism, logging, urban expansion, roads, etc.*
- Is disturbance an important ecological factor in all ecosystems? *Some ecosystems such as the tropical rainforests of Brazil experience relatively little disturbance.*