

NAME: \_\_\_\_\_

# Disruptive Scenarios

Disruptions to our natural habitats can have widespread effects. Not only can they destroy natural and human environments, but they can cause social instability as well. In this activity, you will think about several real-life situations where disruptions are causing major problems around the world—sometimes closer than you think.

**Instructions:** Draw a line matching the disruptions on the left with the corresponding effects on the right.

## DISRUPTION

**Invasive beetles—thriving in a warming climate—kill a huge forest.**

**Coastal wetlands are slowly destroyed by oil drilling operations.**

**Chemicals from agricultural fields drain into a river lacking vegetation on its banks.**

**Carbon dioxide from human activity causes rising temperatures.**

**Visitors destroy grasses and dunes on a beach, which is a vital habitat for endangered species.**

## EFFECTS

**Species dependent on this ecosystem—birds, mammals, insects, and other plants—are forced to move or die.**

**Low-lying cities along the coast suffer massive flooding due to the lack of a buffer from the sea.**

**A “dead zone” is caused when a chemical imbalance causes an algal bloom, depriving fish species of oxygen.**

**Sea levels rise, causing coastal flooding. Plants and animals struggle to adapt to new temperatures.**

**Shorebird populations plummet, some of which are driven to the brink of extinction.**







## WHAT IS THE IMPACT?

For each of the scenarios above, identify a state where the disruption is happening and describe how it impacts human life.

SCENARIO	STATE	IMPACT ON HUMANS
Invasive beetles		
Destruction of wetlands		
Chemicals in rivers		
Excess of carbon dioxide		
Destruction of dunes		

# Create Community Solutions

Evaluate the real-world challenges and solutions below. Then identify issues in your own community and propose solutions that use plants and plant experts.

COMMUNITY ISSUE	IMPACT	PLANT-BASED SOLUTION	PLANT PROFESSIONAL
 <p>Large amounts of rainfall within a short period of time cause flooding in low-lying communities.</p> <p><b>PROPAGULES</b> are plant structures capable of growing a new plant, such as a seed, spore, or plant cutting.</p>	<ul style="list-style-type: none"> <li>▶ Disrupts drainage systems in cities.</li> <li>▶ Overwhelms sewer systems.</li> <li>▶ Stagnant pools of water become a breeding ground for insects.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Plant trees, bushes, and <b>propagules</b> around vulnerable areas so the roots dig deep into the soil and act as a barrier to floodwater.</li> <li>▶ Support healthy wetland systems to purify water, regulate water flow, and stabilize bank streams.</li> </ul>	<p><b>NATURAL LANDS MANAGER</b></p>  <ul style="list-style-type: none"> <li>▶ Specializes in maintenance and upkeep of land such as wetlands.</li> <li>▶ Determines optimal conditions for dry and flooded soil to support propagation.</li> </ul>
 <p>Suburbia is "carpeted" with grassy lawns. These landscapes create a grass <b>monoculture</b> due to an aesthetic preference for green, well-kept lawns.</p> <p><b>MONOCULTURE</b> is the practice of growing a single type of crop or plant.</p>	<ul style="list-style-type: none"> <li>▶ Chemical runoff from lawn fertilizer is a major source of water pollution.</li> <li>▶ Monoculture creates fewer opportunities for biodiversity.</li> <li>▶ Keeping lawns watered can put pressure on our freshwater reserves.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Add trees and shrubs to slow rainfall, create shade, and provide animal habitats.</li> <li>▶ Plant wildflowers to attract pollinators, frogs, and worms and other invertebrates.</li> <li>▶ Choose plants that will survive in climate and soil conditions without the need for additional watering and fertilization.</li> </ul>	<p><b>LANDSCAPE DESIGNER</b></p>  <ul style="list-style-type: none"> <li>▶ Designs a beautiful and functional outdoor space incorporating a variety of plants.</li> <li>▶ Uses knowledge of horticulture to recommend plants suited to climate, amount of sunlight, and soil type.</li> </ul>
 <p>Vacant lots in urban centers attract illegal dumping, are unsightly, and detract from the pride residents feel about their communities.</p> <p><b>FOOD INSECURITY</b> is being without reliable or consistent access to affordable and nutritious food.</p>	<ul style="list-style-type: none"> <li>▶ Dumping contaminates land with hazardous waste.</li> <li>▶ Abandoned lots create an impression that a neighborhood is unsafe or not cared for.</li> <li>▶ Untended lots can become breeding grounds for pests that carry bacteria and disease.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Reclaim the land and clear it of debris and hazards.</li> <li>▶ Create an urban garden and green market with plants, flowers, and vegetables.</li> </ul>	<p><b>URBAN FARMER</b></p>  <ul style="list-style-type: none"> <li>▶ Helps to lessen food insecurity by growing fresh and healthy food choices in urban centers.</li> <li>▶ Increases access to locally grown plants and foods that have been produced in environmentally sustainable ways.</li> </ul>