



Disruption: Virus Outbreak

A viral disease has appeared in the local Sumatran elephant population. This year's young elephants are sick and many older elephants have died.

- Have the Sumatran elephant tug on their strings. How might those organisms be affected?
- The Sumatran elephant and Sumatran rhino share some habitat and food sources. How might the Sumatran rhino be affected by decreased numbers of Sumatran elephants in their ecosystem?
- Have the Sumatran elephant drop their strings.
 - How would decomposers be affected by this change?
 - How would organisms that are not directly connected to the Sumatran elephant be affected by the virus outbreak?



Disruption: Mosquito Spraying

Locals concerned about diseases spread by mosquitoes have started aggressively spraying pesticides to reduce their numbers. As a result, the mosquito population drops.

- Have the mosquito (*Aedes aegypti*) tug on all the organisms it is connected to in the food web. How might those organisms be affected?
- Have the mosquito drop all strings to other organisms. Are some more affected than others?
- If spraying for mosquitoes protects human life, is it always worth possibly harming the ecosystem? How would you gauge that decision?



Disruption: Drought

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- Low levels of rain led to a year in which most plants in Way Kambas National Park produced few leaves, and many died. Only the drought-tolerant tropical almond had a significant production this year.
- Have producers that are not the tropical almond tug on the strings that connect them to other organisms in the food web. How might they be affected?
- How might the tropical almond be affected by significant decreases in other plant species?
- Have producers that are not the tropical almond drop their strings.
 - Are some organisms more affected than others?
 - Would this affect any organisms that are not directly connected to the tropical almond?



Disruption: Invasive Species

A new species of plant enters the ecosystem. It reproduces faster than existing plants, including the tropical almond, and is not a food source for herbivores or omnivores in the ecosystem.

- Have the tropical almond tug on their strings. When they drop out, how will other organisms in the ecosystem be affected?
- The number of plant species in the food web is significantly lower than it was at the beginning of the activity. Do you think the response to this new species would be different with a more diverse ecosystem? Why or why not?