

Costa Rica

Ecosystems and Fauna



The Young Scientist Program

<http://ysp.wustl.edu>

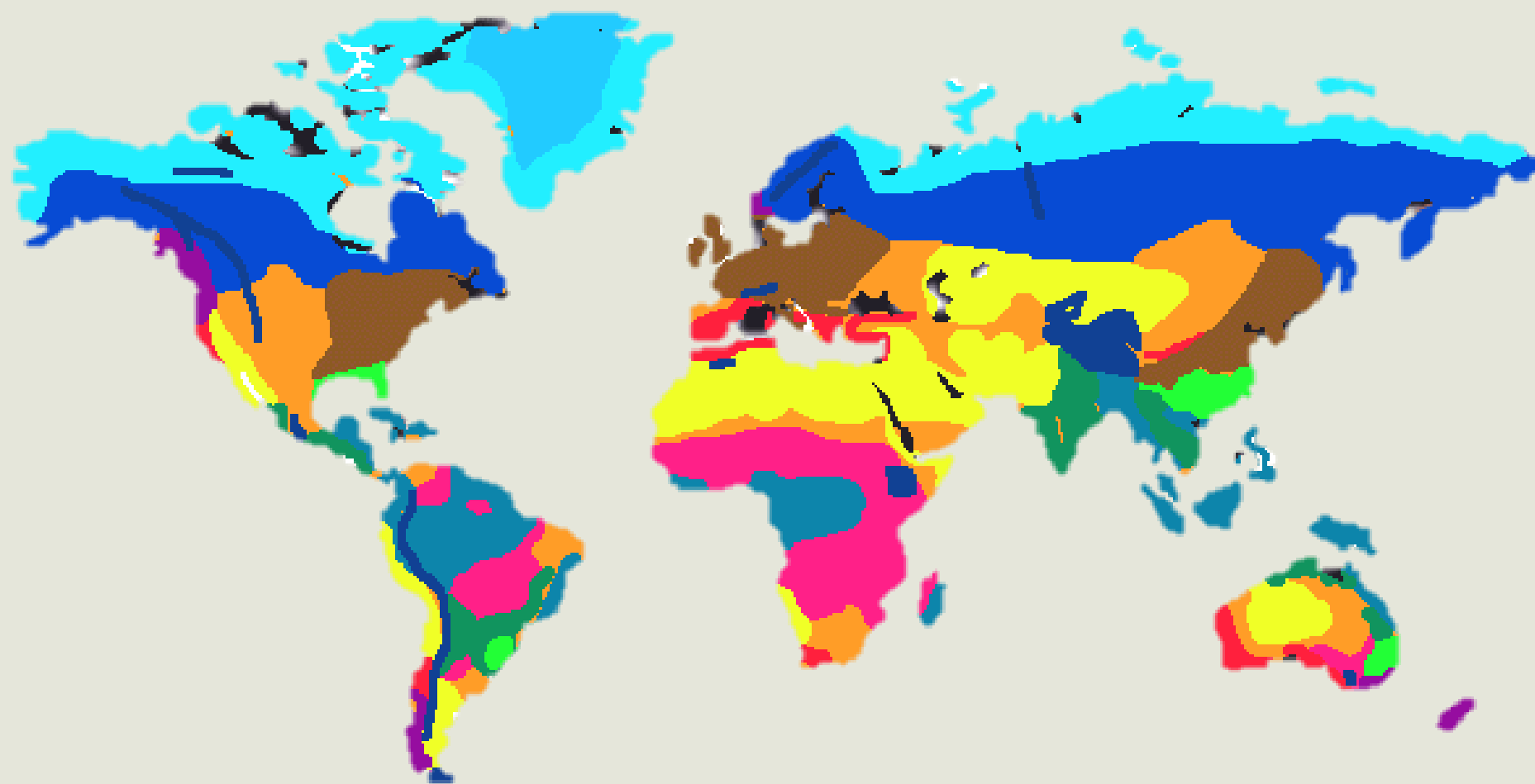
Washington University School of Medicine

Ecology/Evolution Teaching Team

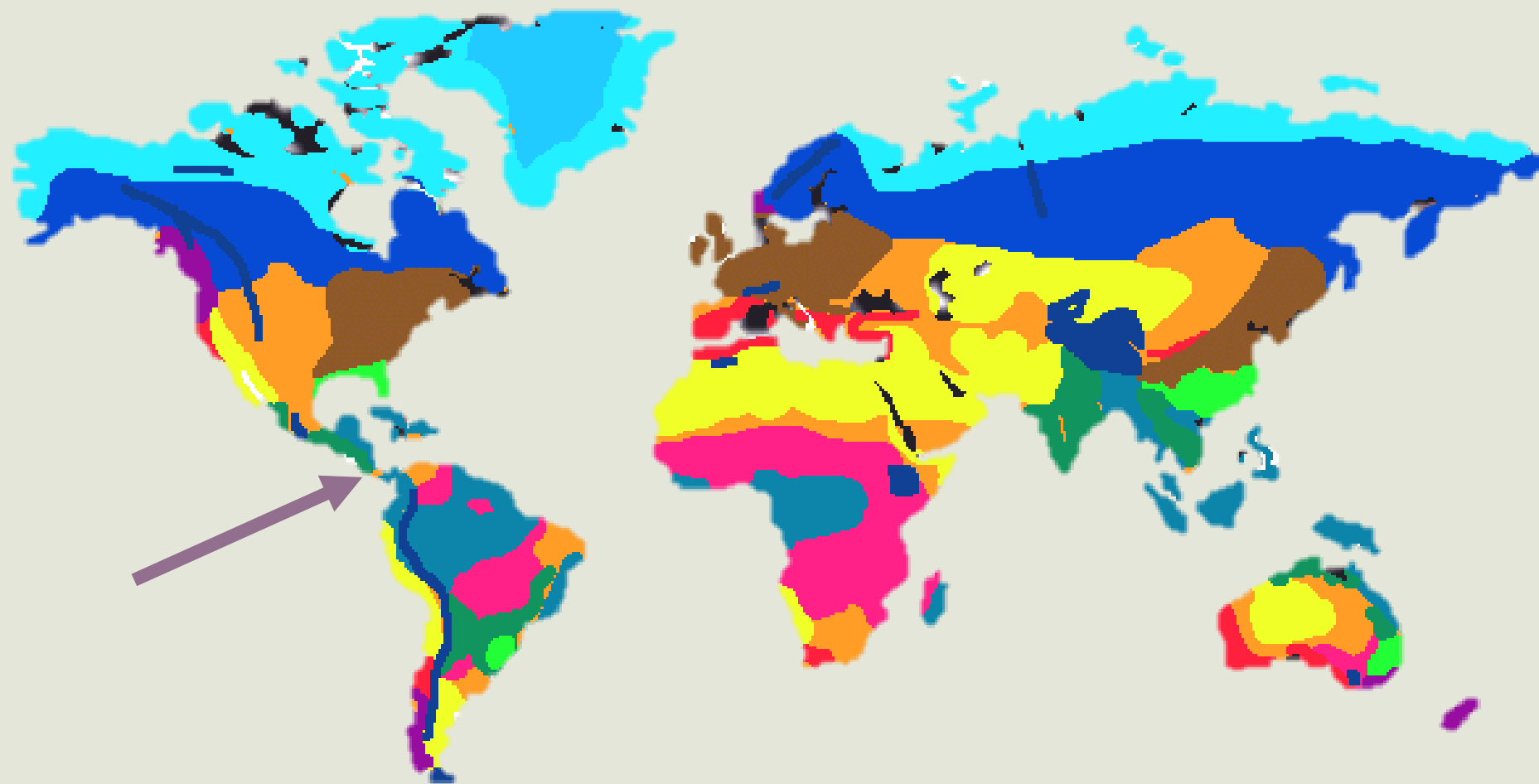
What is an ecosystem?

Ecosystems are sets of living organisms (plants, animals, and microorganisms) that interact among themselves and with the environment in which they live (soil, climate, water and light).

Where is Costa Rica?



Where is Costa Rica?



Conditions of Costa Rica

- Close to the equator and it is tropical all year round
- Has many **microclimates** due to variation in:
 - Temperature
 - Elevation
 - Rainfall
- The summer is the dry season
- The winter is the wet season

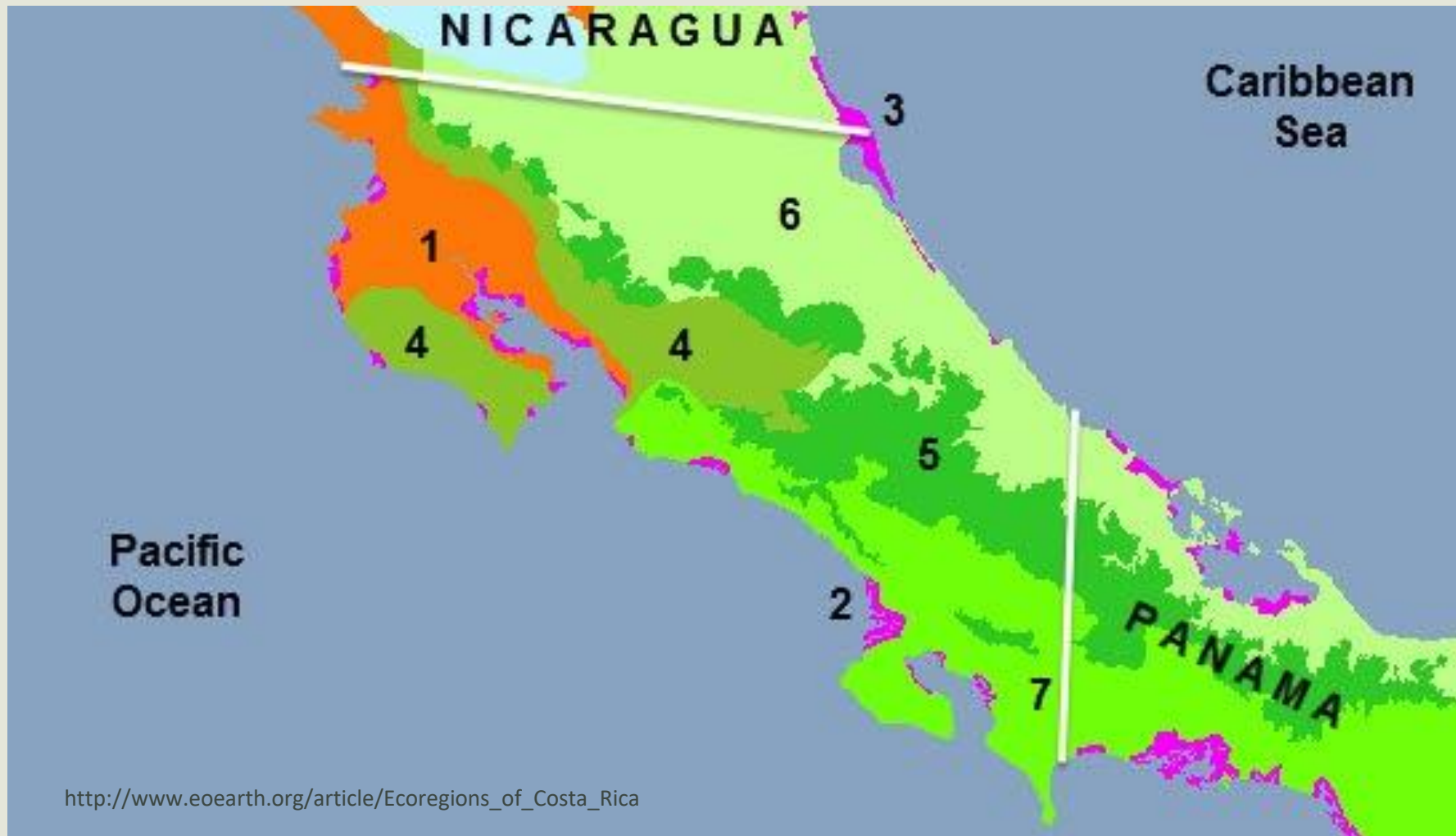


Locations in Costa Rica

- Guanacaste Mountains
- Tilaran Mountains
- Fortuna Waterfalls
- Poas Volcano
- San Jose



Different ecosystems



- 1 – Tropical dry forests
- 2, 3 – Mangroves
- 4, 5 Cloud Forests
- 6, 7 – Rainforests

Dry Forest

- Typically found in Guanacaste
- Forests receive less annual precipitation
- Trees are usually deciduous (lose leaves in the fall and regrow them in the spring)
- The animals and plants are generally environmentally tough, resistant to desiccation and intense sun, and a bit less dependent on complex species-species interactions than are rain forest species.



Cortez tree

Mangroves

- Estuarine ecosystem (connection with the open sea)
- High amounts of salinity (salt) so trees are able to adapt by releasing salt from leaves
- Roots above ground to allow for aeration
- Acts as a filter for freshwater dumping into the ocean



Cloud Forest

- Winds flow from the northeast across the warm Caribbean Sea
- This hits the side of the mountain pushing the air upwards allowing it to expand and cool
- Cool air holds less moisture the humidity forms droplets, mist and clouds
- High concentration of endemics

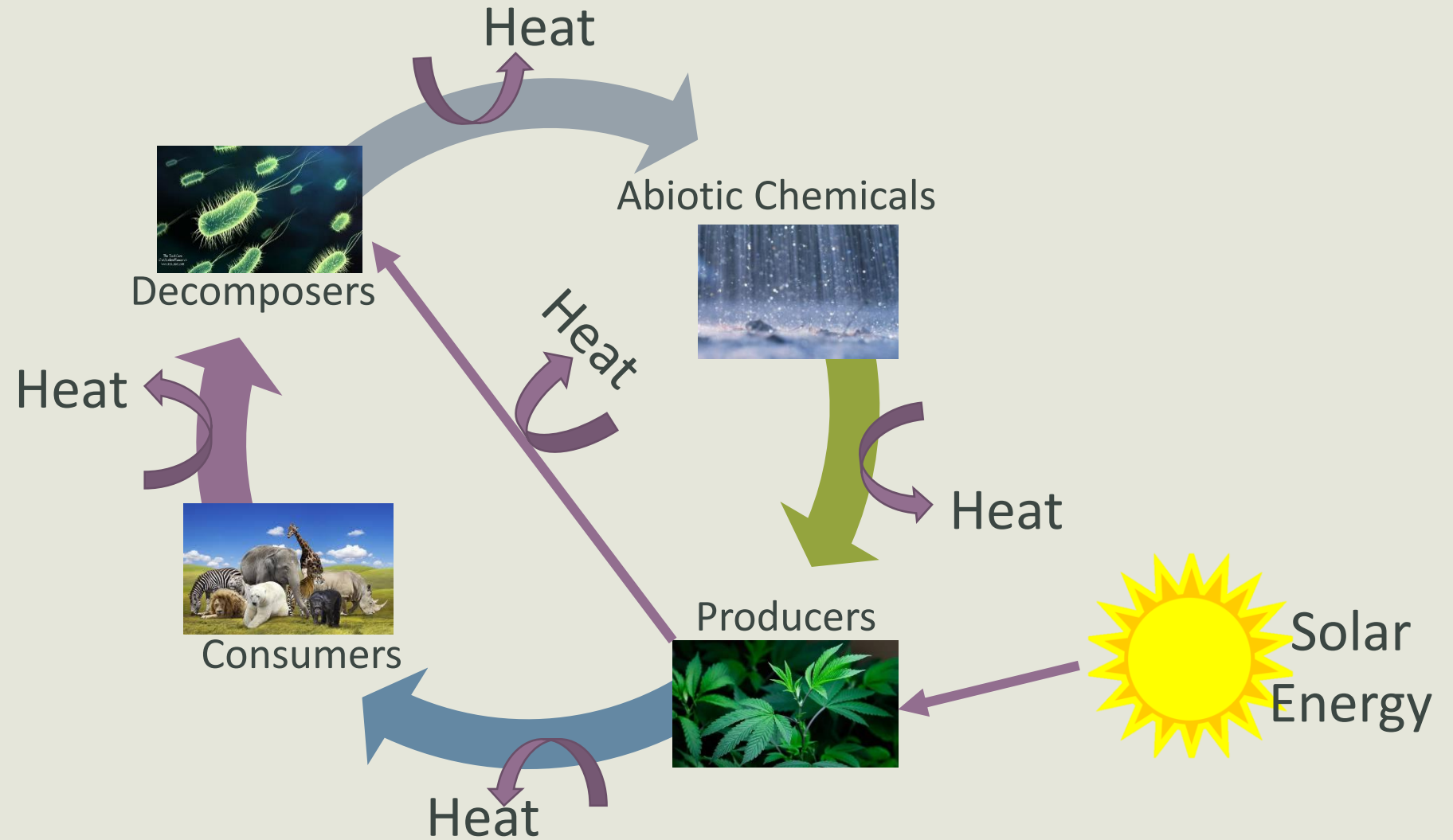


Rainforest

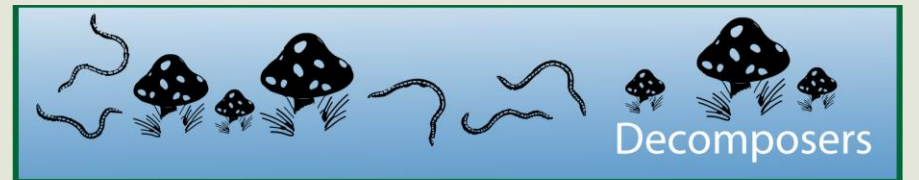
- Greatest species diversity of any ecosystem
- More than half of the planet's species live in rainforests
- Different levels:
 - Understory – above the ground but below the leaves
 - Canopy – upper part of the trees
 - Emergents – very tall trees
- Trees can grow up to 190 feet
- Epiphytes (plant that grows on another plant) are common



Ecosystems rely on cycling of nutrients to survive

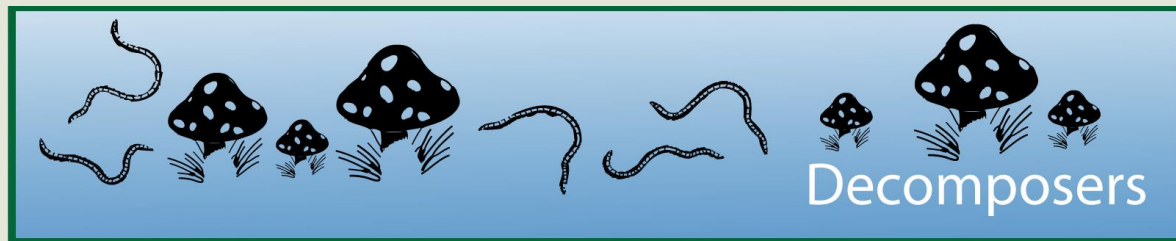


Trophic Levels

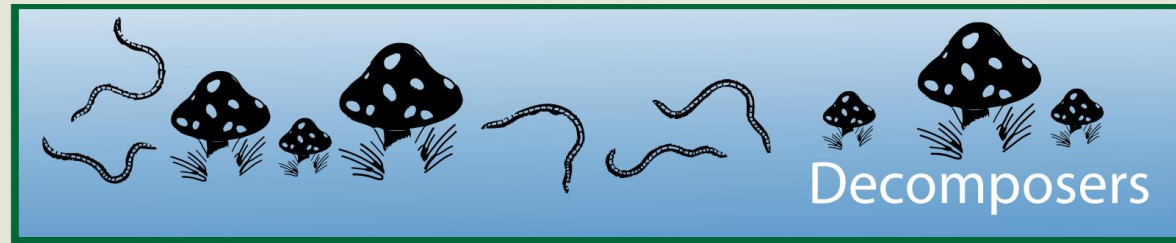


Trophic Levels - Decomposers

Can you think of some decomposers we might see in Costa Rica?



Trophic Levels - Decomposers



Cauliflower Fungus



Cumberland Rock shield - Lichen

Trophic Levels - Producers

Can you think of some producers we might see in Costa Rica?



Trophic Levels - Producers



Acacia

Symbiotic mutualism with Ants



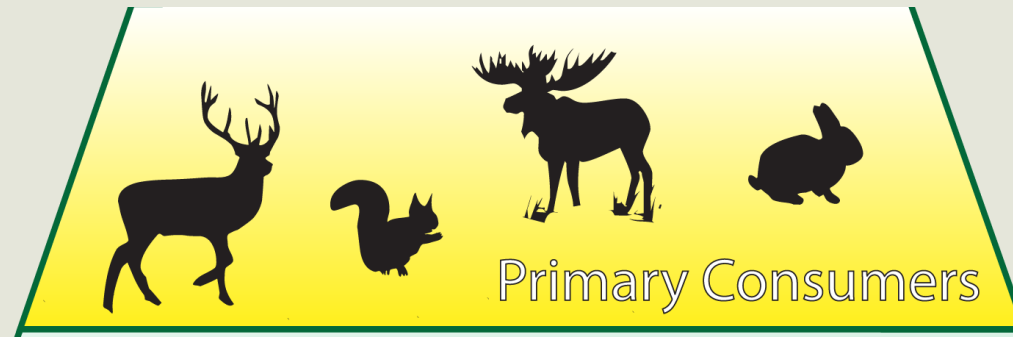
Mangroves



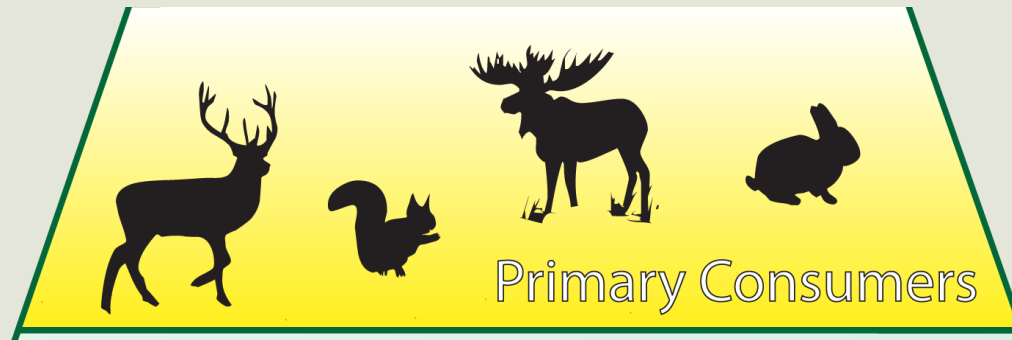
Parrot Flower
Heliconia

Trophic Levels – Primary Consumers

Can you think of some primary consumers we might see in Costa Rica?



Trophic Levels – Primary Consumers



Mangrove hummingbird



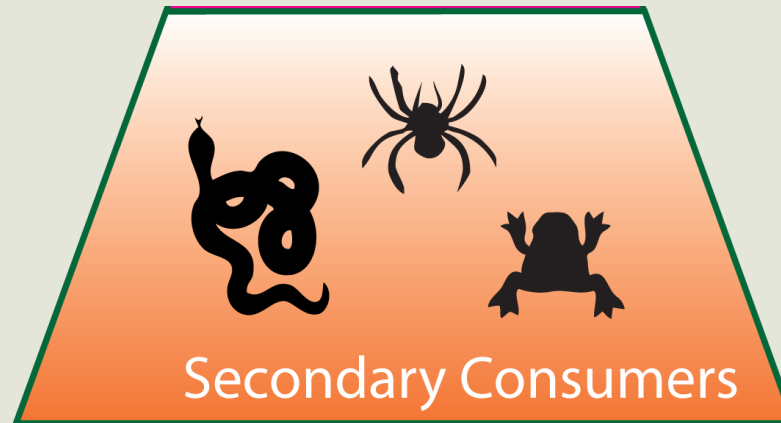
Leaf cutter ants



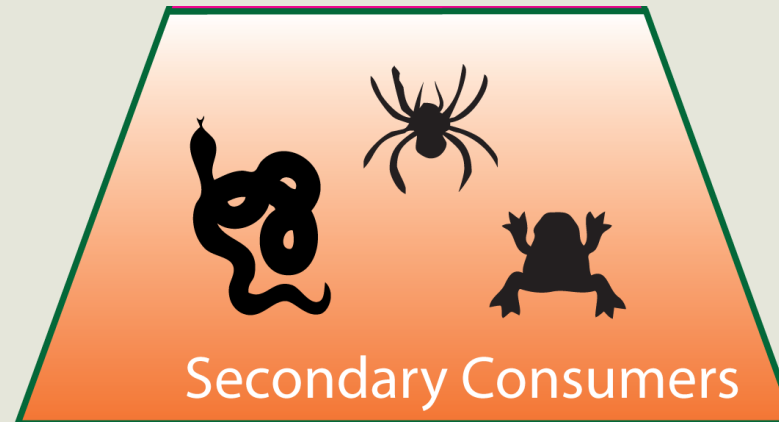
Three-toed sloth

Trophic Levels – Secondary Consumers

Can you think of some secondary consumers we might see in Costa Rica?



Trophic Levels – Secondary Consumers



Capuchin monkey



Poison Dart Frog



Anteater

Trophic Levels – Tertiary Consumers

Can you think of some tertiary consumers we might see in Costa Rica?



Trophic Levels – Tertiary Consumers



Jaguar



Spectacled Caiman

A photograph of two bromeliads growing on a horizontal tree branch. The bromeliad on the left is green with long, pointed leaves. The bromeliad on the right has long, thin, white leaves and a red, spiky flower. The background is a dense green forest, and the scene is reflected in the water below.

**You must be
an epiphyte,**

**because I
want you
all over me**

To:

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