

ARE YOU SYMBIOTIC?

Net gain for organisms

Positive Gain

Negative Gain

Zero Gain

from Symbiosis; the act of "living together" with close and constant interaction.

A relationship in which individuals from different species interact, with BOTH parties benefitting

OXPECKER VS. IMPALA

African Oxpeckers (or Tickbirds), like to ride on the backs of large animals, such as Zebras, Rhinos, Hippos, and Impalas. They have an exclusive diet of ticks, which are often found burrowed in the fur of these animals. The Oxpeckers benefit from giving themselves a meal, while the Impala benefits with the relief of infestation from the ticks.

MUTUALISM

A relationship in which individuals from different species interact, with only ONE party benefitting, and the other being harmed

COWBIRD VS. OTHER BIRDS

Brown-Headed Cowbirds are known as "nest parasites." Because of the constant migrating with Bison, Cowbirds had to find a way to still lay eggs while moving around. This led to their parasitic relationship with other birds, in which Cowbirds lay their eggs inside the nests of other birds, and manipulate the other birds to raise their own. The Cowbirds benefit by still having their species live on and expand. But the other birds face a negative impact, as the Cowbird eggs always hatch first and push the host eggs out of the nest, possibly killing them.

PARASITISM

A relationship in which individuals from different species interact, with only ONE party benefitting, and the other neither harmed nor benefited

IMPERIAL SHRIMP VS. SEA CUCUMBER

Imperial Shrimps are known to have commensal relationships with several anemone species, such as the Sea Cucumber. The Shrimps like to latch on to the Cucumber and follow it to a designated food area. Once there, the Shrimps will detach themselves to eat, and then get back on the Cucumber to find a nother area. This creates a benefit for the Shrimp by helping to provide food, and while the Sea Cucumber is not benefitting from this interaction, it is also not harmed in any way by the Shrimp attaching itself to its body, which gives the Sea Cucumber a Zero Net Gain.

COMMENSALISM



Maribel Brenes
Ecology
Chris Jensen
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Final Project Summary:

My final project was based on the ecological concept of Symbiotic Relationships. I was very intrigued learning about some of the mutualistic and parasitic relationships among organisms, and even about a third relationship known as commensalism. With this information, I wanted to express what I had learned graphically, in the hopes of giving students something to think about the next time they interact with another organism, be it animal, plant, or human.

In achieving this goal, I decided to make an info graphic explaining each of the three major symbiotic relationships that occur between different species and individuals. Starting with basic information, I used Wikipedia's website to jot down the definition of a Symbiotic Relationship, as well as the explanations for each of the three different types of relationships that exist (4). Going further into detail, I then found other websites that displayed several examples of the different symbiotic relationships to use for my info graphic. I found one example for each relationship and displayed the organisms in a simple graphic silhouette. Using an online article from Cosmos Magazine, I found some examples of famous mutualistic relationships among organisms, and chose the one involving African Oxpeckers (2). Then, finding a webpage from Marietta College, I found several examples of parasitic relationships, such as the Cowbirds that I used for my info graphic (3). Lastly, I found a personal (but referenced) website about symbiosis, with examples of commensal relationships, such as the Shrimps and Sea Cucumber (1).

Using all of these examples, I completed my info graphic with all of the organisms represented, as well as a written explanation of how the relationship for each example works. I also wanted to communicate the Net Gain for each organism visually, and so I created a color guide to show which organisms get a positive gain, which ones a negative gain, and which ones a zero net gain. Now, when someone sees this info graphic, they will be informed of these relationships that exist in the world, and hopefully question which category they would fit in based on the relationships that they have formed throughout their lives.

Bibliography:

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