

## Everglades Capstone Project Part 2

### **List & Discuss the producers in your food web**

In the food web, the producers are the hypericum, floating bladder wort and the butterfly orchid. These plants fall into the category of producers because unlike the other organisms; they do not feed on any organism to obtain energy. They instead manufacture their own food using water, carbon (IV) oxide and energy from the sun.

### **2). List and discuss the herbivores in your food web.**

From the food web, the mosquito is the only herbivore. Herbivores are animals that are adapted to feed on plant matter (Dormann, Gruber & Fründ, 2008). From the food web, mosquito feeds on the butterfly orchid which is a plant.

### **3). Are there any organisms in your food web that are omnivores? On which trophic levels are they feeding?**

Omnivores are animals that feed on both animal and plant matter (Casini, Lövgren, Hjelm, Cardinale, Molinero & Kornilovs, 2008). From the food web, the bluegill falls in this category since it feeds on plant matter; the hypericum, floating bladder wort and the butterfly orchid as well as animal matter; the mosquito. As an omnivore, the bluegill feeds on two trophic levels; producers comprised of the hypericum, floating bladder wort and the butterfly orchid and a primary consumer; mosquito.

### **4). List and discuss the carnivores in your food web?**

Carnivores are animals adapted to feed on the animal matter (Ogden, 2008). From the food web, there are three carnivores; crocodile, Burmese python and the great blue heron. These three organisms feed exclusively on animals. The crocodile feeds on the great blue heron and the

bluegill both of which are animals. The python feeds on the great blue heron while the great blue heron feeds on the bluegill.

**5). Identify and list a food chain within your food web that depicts at least *three trophic levels*. What organism in your selected food chain is a secondary consumer?**

From the food web, the food chain that depicts at least three trophic levels is as shown below.



Secondary consumers are carnivores that feed only on herbivores. From this food chain, it's clear that the secondary consumer is the great blue heron. Since it feeds on the bluegill which is a herbivore.

**6). Are there any non-native species in your food web? Briefly describe how they are altering this food web in the Everglades ecosystem?**

In the food web presented in part 1, the Burmese python is a non-native species in the Everglades. This species which is indigenous to Southeast Asia has been found to be breeding and spreading in the Everglades. Their invasion of the Everglades is largely attributed to intentional or accidental release by pet owners (Ogden, 2008). The population of this species in the Everglades is exerting significant negative impacts on the Everglades ecosystem. It preys on most birds and mammals within the ecosystem thereby suppressing their population. It also competes with native predators like alligators for food and thus limits the growth of their populations.

**7). Choose a primary consumer in your food web. If its population suddenly started to decline, what density-dependent (biotic) factors could be causing it and would be the effect?**

If by any chance the bluegill population suddenly started to decline, this could be attributed to an increase in the number of the secondary consumer; the great blue heron or a decline in the number of the producers; hypericum, floating bladderwort, and the butterfly orchid. The effect of the decline in the number of bluegills will be an upsurge in the number of hypericum, floating bladderwort and the butterfly orchid as well as a decrease in the population of the great blue heron.

**8). Choose a secondary consumer in your food web. If its population suddenly started to increase, what density-dependent (biotic) factors could be causing it and what would be the effect?**

If the number of the great blue heron suddenly started to increase, it would be as a result of an upsurge in the number of the bluegill or a decline in the number of the Burmese python. The effect would be an upsurge in the number of the Burmese python and a decline in the number of the bluegill.

**9). Are there any keystone species in your food web? If a keystone species were removed from your food web? How would its loss impact the other organisms? If there are no keystone species in your food web, describe what this type of species is?**

A Keystone species is a species whose role in the ecosystem significantly influences the interrelationships between all the species in the ecosystem (Lodge, 2016). They determine not only the type but also the number of species that exist in a community. Within the Everglades

ecosystem, the keystone species is the American alligator. The holes they make to house them provide food and water for the other species in times of drought. They also keep the populations of their prey within the reasonable levels which helps to control the infestation.

**10). Are there any endangered or threatened species in your food web? If the species goes extinct, how would its loss impact the other organisms?**

While none of the animals depicted in the food web have been marked as endangered, the presence of the Burmese python in the ecosystem endangers their survival. The Burmese python directly competes for food with the crocodile thereby limiting the amount of available food. The python also preys on the great blue heron and significantly reduces its population.

## References

- Casini, M., Lövgren, J., Hjelm, J., Cardinale, M., Molinero, J. C., & Kornilovs, G. (2008). Multi-level trophic cascades in a heavily exploited open marine ecosystem. *Proceedings of the Royal Society of London B: Biological Sciences*, 275(1644), 1793-1801.
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