Tropical rainforests vs tropical grasslands

Life

Discussion Based on the data at Tables 4c. 2 and 4c. 3, it is evident that the tropical rainforest has higher species richness than the tropical grassland ecosystem. However, when based in the indices on Diversity, Similarity and Dominance in the tropical grassland and tropical rainforest data, the Simpson Indices favor the data for the tropical rainforest as more diverse than the tropical grassland. The Simpson Indices, as defined in Cuevas et. al (2012), is based on dominance and as the number of dominant species in a community are few, the species has low diversity.

The tropical rainforest ecosystem showed a higher index of dominance than the tropical rainforest resulting to the higher values it obtained in the Simpson Indices of Similarity and Evenness. This means that most of the dominant organisms present in the grassland are quite similar and the same due to the higher Simpson Indices on Equitability and Diversity while it is a different case forthe forest. First, we need to identify the forest study site as a secondary or primary growth type. From the tables of species richness and number of species seen in an area, we can deduce that the forest study site is a secondary growth forest.

Secondary growth forests are products of secondary succession. Secondary succession, as described in Campbell (1996), is the type of succession that occurs when the soil is intact and accommodates a considerable amount of nutrients that can support life. This succession is primarily dependent on the pioneer species (e. g mosses, weeds and etc.) which tends the soil from its lifeless state. Since pioneer species are mostly small and more adaptable to the harshenvironment, we can say that the organisms or individuals present in the forest study site are products of secondary succession.

A primary growth tropical rainforest, in turn, has the following characteristics: a barren soil, presence of few organisms that can flourish at extreme conditions (pioneer organisms) and development of communities in a newly formed habitat (Ricklefs, 2008). However, the study site showing the higher species diversity based on Shannon index is the tropical rainforest study site. Comparing data presented at Table 4C. 4, the tropical rainforest showed that even in the degree of randomness of the species, the tropical rainforest showed a wider variety of species compared to the tropical grassland.

The Shannon Indices are also dependent on the species richness or the number of species in a given area. (Begon et. al, 2006). Also, some species or individuals are specific in terms of their habitat. This species are sometimes common in a given habitat while rare in another type of habitat. For the common species in the grassland, Imperata cyndrica, Mimosa and Elepantopus are examples of species that are generally common due to their intercepted lengths or relative covers, as seen in Table 4C. 2, which yielded considerable values for it to be classified as common.

Grassland individuals form in clusters and are difficult to recognize as individual species, which is why counting them as separate individuals is not practical and difficult. They are counted through the relative cover that their nodules occupy. These individuals may have the following factors that allowed them to develop in their present habitat: good interspecific competitor, highly adaptive to harsh environment and efficient distribution of nutrients and essential compounds to the plant itself. However, some

species are rare in grasslands. Examples of the rare species in the grassland ecosystem are Desmodium, Sorghum, and Borreria.

Based on the intercepted lengths and % cover of the species in Table 4C. 3, the species are rare due to low values it yielded on the parameters (i. e. intercepted lengths, relative cover and etc.) and thus, regarding it as rare. This species or individuals may be rare due to low interspecific competition and are not yet adapted to their environment. They may also be dispersed randomly and landed on a grassland ecosystem that offers unfavorable conditions to the growth and development of such plants. Species that are quite common in the tropical rainforest are the Palosanto, Caryota cumingii and Cariota rumphiana.

Even if the species or individuals are high in numbers compared to other plant species present in that area, we cannot conclude that these plants are the dominant individuals in the tropical rainforest. There may be certain reasons why these individuals are high in numbers. We should include factors such as reproduction rates or processes since these individuals have different ways of propagating their seeds and also the nutrient availability of the given area in the study site that the individuals really thrive for specific nourishment the place or area provides.

Also, the forest has a larger area for growth and development of species and a larger area would signify that it could accommodate more species than the grassland ecosystem. The diversity of individuals in an ecosystem is affected by many factors including the area, nutrient availability and presence of biotic interactions such as competition, mutualism and etc. that would allow species or individuals to grow and develop for a higher diversity in an

ecosystem. Begon et. Al, 2006) Conclusion Based on the data gathered and computed, we can say that even if the tropical rainforest species or individuals showed lesser dominance on one another, they exhibited a wider variety of species than the tropical grassland organisms. In the computation for the Shannon's Indices of Diversity and Evenness, the tropical rainforest is a better candidate for a more diverse and even distribution of species compared to the tropical grassland.

The same goes for the Simpson Indices of Dominance, Diversity and Evenness of the tropical rainforest that was more favorable than the tropical grassland. However, presence of viable resources, the area of the ecosystem and specific biotic interactions, such as competition in clumped-distributed plants, greatly affects the diversity of plants since plants tend to disperse and develop in places or areas that have lesser competition and high amount of viable nutrients.

Since the tropical rainforest showed most of the characteristics needed for a plant individual to diversify, we can conclude that the tropical rainforest is more diverse and exhibits higher species richness than the tropical grassland ecosystem. However, It is strongly recommended that the increase of transect size or area for research study regarding the diversity and richness of species to validate the errors in this exercise. Introduction A community, as defined in the Dictionary of Ecology (1962), is a group of one or more populations of organisms in a common spatial arrangement or area.