

## Patterns of species diversity and its determinants in a temperate deciduous broad-leaved forest

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*Received: 03-Oct-2022; Manuscript No: JAEFR-22-78667; Editor assigned: 05-Oct-2022; Pre QC No: JAEFR-22-78667 (PQ); Reviewed: 19-Oct-2022; QC No: JAEFR-22-78667; Revised: 24-Oct-2022; Manuscript No: JAEFR-22-78667 (R); Published: 31-Oct-2022; DOI: 10.3153/JAEFR.22.8.002*

### Introduction

Biodiversity is defined as the number of different species found in an ecosystem and the relative abundance of each of them. Imagine you're chasing a horned lizard, using a strange tactic that squirts blood from its eyes to scare you away. Imagine going diving and encountering 1 of the ugliest fishes in the world, the anglerfish [1]. This is not sci-fi. That's true. There are strange creatures that call Earth home. The diversity of creatures that roam the earth is truly amazing. Biodiversity is defined as the number and variety of species inhabiting a particular location [2]. The number of species that live in a particular place is called species richness. If you measure forest biodiversity, you can find 20 species of birds, 50 species of plants, and 10 species of mammals. For example, 100 mountain beavers can live in a forest [3]. We can talk about biodiversity on a small scale, like forests, or on a big scale, like the diversity of all the species on earth. There are about 1.8 million different species classified on Earth. Almost 1 million of all identified species are insects [4]. New species are discovered every year. Scientists estimate that there are between 5 and 30 million species actually living on Earth. About 13,000 species are added to this ever-growing list of known species each year. For example, in 2013, a species of venomous snake called the Green Palm Pit Viper was discovered in the country of Honduras. There are many reasons why biodiversity is essential. Each species has a role in the ecosystem [5]. For example, bees are the main pollinators. Imagine what would happen if the bees died. Next can be fruits and vegetables and the animals that eat them. This chain extends to humans.

### Description

Various species not only provide us with food, but also clean water, breathable air, fertile soil, climate stability, absorption of pollutants, building materials for our homes, prevention of disease outbreaks, and medical resources. etc. Biodiversity

contributes to ecosystem health [3]. The disappearance of 1 species can disrupt entire ecosystems. Biodiversity is critical to ecosystem health. For example, in the Pacific Northwest, salmon hold entire ecosystems together. Salmon bring rich nutrients from the sea to the river environment. When salmon die, these nutrients are devoured by insects, plants, mammals and birds [5]. Without salmon, the entire food chain would be affected. Depending on the goal of quantifying biodiversity, the data sets used in the calculations can be obtained in different ways. Species diversity can be calculated for any data set in which individuals are identified as species, but meaningful ecological interpretation requires that the data set is appropriate to the question at hand [2]. In practice, interest in local biodiversity is usually so high that not all individuals can be observed and identified species-specifically, but samples of relevant individuals should be obtained. Extrapolation from samples to underlying populations of interest is not trivial, as the species richness of the available samples generally leads to an underestimation of the species richness of the population as a whole [1]. Using different sampling methods, different groups of individuals may be observed in the same region of interest, and each group may have different biodiversity. As new individuals are added to the dataset, previously unrepresented species may be introduced.

### Conclusion

Each new actual species increases the species diversity by 1 valid species, adding a rare species to the dataset does not affect him very few. In general, 1 can expect higher species diversity in groups with large numbers of individuals than in groups with small numbers of individuals. When comparing species diversity values across sets, the sampling effort should be properly standardized so that the comparison yields ecologically meaningful results. A resampling method can be used to bring samples of different sizes into a common ground. The species detection curve and the number of

species represented by 1 or a few individuals can be used to estimate how representative the available sample is for the population from which it was drawn.

### **Acknowledgement**

None.

### **Conflict of Interest**

The author declares there is no conflict of interest in publishing this article.

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