Research Report

A Study on the Species and Density of Mosses in the Area of Surin Cave, Palian District, Trang Province.

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Research Title:A Study on the Species and Density of Mosses in the Area of Surin Cave, Palian District, Trang Province.

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Abstract

This research aims to study the species and density of mosses at the entrance and surrounding areas of Surin Cave, Palian District, Trang Province. The study was conducted to examine the species and density of mosses, and it was found that the Juniper Haircap moss species exhibited varying densities, with a higher density found on the sides of the cave compared to the entrance.

Keywords:Mosses, Plants in the Bryophyte group

Introduction

Background and Importance

Mosses are small plants classified under Bryophytes, a group of plants that lack vascular tissues for water and nutrient transport. Mosses can be commonly found in

environments with high moisture, such as humid forests, soil, rocks, walls, or even trees. They play a crucial role in ecosystems, such as maintaining soil moisture, preventing soil erosion, and providing habitats for various small animals. In the case of Surin Cave, Palian District, Trang Province, the research group is interested in studying the species and density of mosses in this area.

Research Question

What is the density of mosses in the area of Surin Cave?

Hypothesis

The density of mosses in the area of Surin Cave is different.

Materials, Equipment, and Research Methodology Related Variables Hypothesis 1

The density of mosses in Surin Cave is different.

Independent Variable: Surin Cave Dependent Variable: Moss density Control **Variables:** Methods of surveying moss density, methods of studying mosses

Materials and Equipment

1. CU Smart Lens camera with 20x magnification
2. Mobile phone for taking pictures **Research Methodology**

Section 1: Defining the Study Points

The study points are set at Surin Cave, Palian Subdistrict, Palian District, Trang Province, located at the coordinates Latitude 7.3275042° N, Longitude 99.8030141° E.

Section 2: Study of Moss Characteristics and Density in Surin Cave

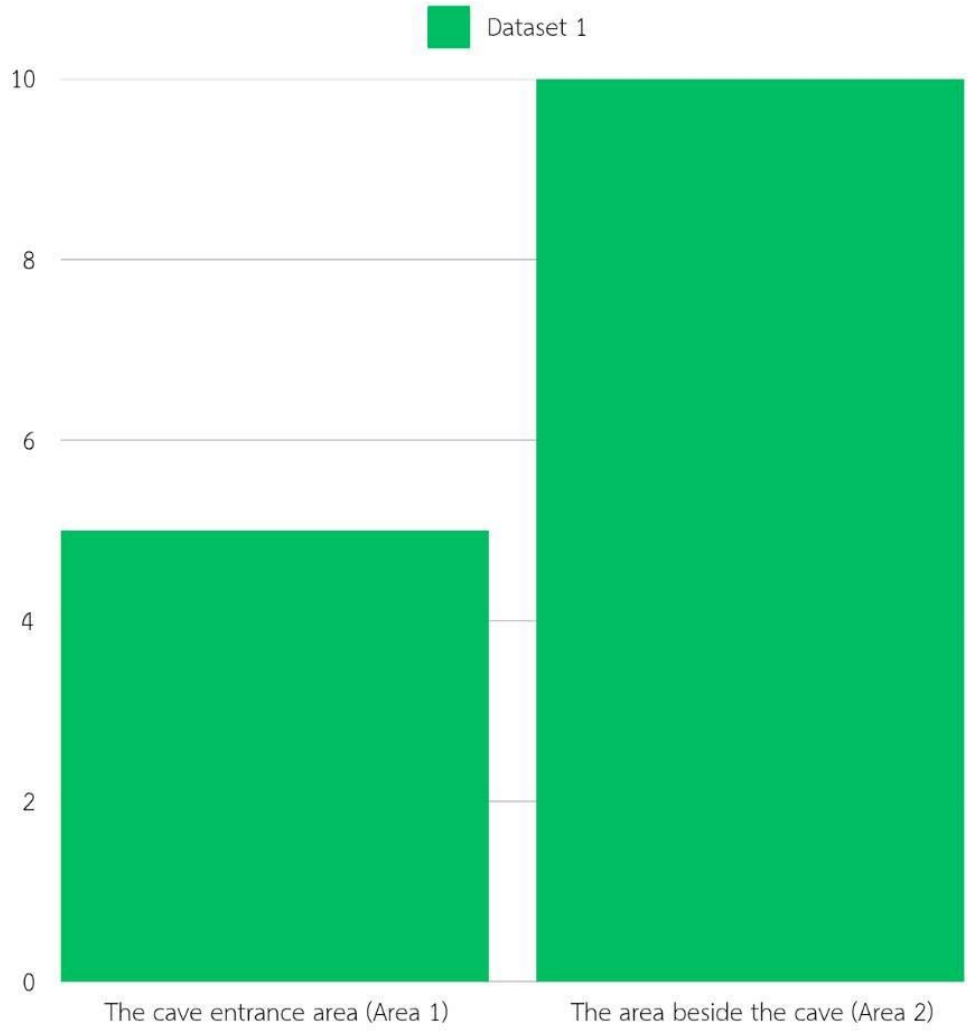
1. Define the study area by placing an A4-sized random sampling grid on the floor or wall of Surin Cave.
2. Use the CU Smart Lens attached to a mobile phone camera for observation.
3. Count the number of mosses within the random sampling grid and record the results.

Experimentalresults

Part 1: Table Showing the Results and Density of Moss in the Area of Surin Cave, Palian District, Trang Province

Survey Points	**Moss Name**	Characteristics	**photo**	amout of mosses
Area 1: Cave Entrance	Juniper Haircap Moss	1. Stem – Erect, sturdy, and approximately 2–10 cm in height. 2. Leaves – Needle-like, arranged in a spiral around the stem. The leaves are grayish-green or reddish-green with small serrations along the edges. 3. Costa (Midrib) – Thick and extends beyond the leaf tip into a pointed shape. 4. Spore Capsule – Cylindrical, upright, with a lid and often covered by fine fibers.		5%
Area 2: Cave Side	Juniper Haircap Moss	1. Stem – Erect, sturdy, and approximately 2–10 cm in height. 2. Leaves – Needle-like, arranged in a spiral around the stem. The leaves are grayish-green or reddish-green with small serrations along the edges. 3. Costa (Midrib) – Thick and extends beyond the leaf tip into a pointed shape. 4. Spore Capsule – Cylindrical, upright, with a lid and often covered by fine fibers.		10%

Chapter 2: A Chart Showing the Moss Density in the Surin Cave Area, Palian District, Trang Province.



From the bar chart, it can be concluded that Area 1 has a lower density than Area 2, but both areas have the same type of moss, which is Juniper Haircap.

Research findings

The survey found that the moss with the highest density in the Surin Cave area, Palian District, Trang Province, is Juniper Haircap, a species of moss that remains luthroughout the year. The density is higher in the area beside the cave than at the cave entrance.

Conclusion and Discussion of the Research Findings

The study found that the diverse moss species found on the rocks in the Surin Cave area, Palian District, Trang Province, is Juniper Haircap moss. This moss has a high density and can achieve a saturated density of more than 500 kg/m^2 due to its structure, which allows it to retain a large amount of water. The dry density ranges from approximately 100 to 250 kg/m^3. The moss has slender, stiff leaves that resemble green needles and have a glossy appearance on the upper surface. It is found in greater density in the area beside the cave than at the cave entrance.

Recommendations

1. There should be a relationship between air quality and moss density

Acknowledgements

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Cryptogamie, Bryologie - A journal focusing on the study of algae, fungi, and bryophytes.
Journal of Bryology - An international journal focused on the study of bryophytes, including mosses.

Lindbergia - A European journal covering research on the taxonomy and ecology of mosses.

Bryophyte Diversity and Evolution - A journal dedicated to the study of the diversity and evolution of bryophytes.