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Flora of Tal Chhapar Wildlife Sanctuary.

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ABSTRACT

In the state of Rajasthan, there are a total of 1,961,500 square kilometers of land that are classified to be desert. In terms of the physiological qualities it possesses, it is an extension of the Sahara Desert to the east. The Thar desert, in its whole, is composed of both moving and stagnant masses of sand throughout its entirety. One of the many regions that come together to form the state of Rajasthan is called Churu, and it can be found in the northern part of the state in Rajasthan. The wild animal sanctuary known as Tal Chhapar can be found in the Sujangarh Tehsil, which is part of the Churu district, which is in the north-eastern part of the state of Rajasthan. Additionally, the Churu district is in the north-eastern part of the state. The purpose of this study is to analyze the nutritional value of the roots, shoots, and fruits of four different species, namely Aerva persica, Salsola baryosma, Suaeda fruticosa, and Tephrosia purpurea. Each of these species is found in Iran.

Key Word: *Tal Chhapar, Rajasthan.*

INTRODUCTION

Ecotourism is a burgeoning industry that brings together nature and vacationing. Ecotourism is a method for conserving natural regions by fostering appreciation for the natural as well as cultural heritage of the surrounding area. It takes precautions to preserve the natural balance of the delicate ecology, even as it generates employment possibilities that are to the benefit of the people living in the area. When we were young, we were taught to revere and protect nature by practicing conservation and avoiding activities that may endanger it. This reverence for environment dates back many millennia. The Indian tradition has long held the belief that people is an inseparable component of the natural world, and that one ought to see the entirety of creation through the lens of kindness and reverence.

The terrain of India provides a rich habitat for a diverse array of plant and animal species. There are several species of animals in India that are extremely uncommon, endangered, or susceptible to extinction. The establishment of wildlife areas such as biosphere reserves, marine protected areas, national parks, sanctuaries, tiger reserves, world heritage wetland areas, community conservation reserves, and other similar places has resulted in significant improvements to the health and well-being of these magnificent creatures. In addition, if we look at how things have changed through time, we can see that wild animals are in a much better position

today in terms of their protection from potential dangers such as hunting. There are a total of 80 national parks and 144 wildlife sanctuaries in India, both of which are designated as protected places for various species of wild animals.

Because of the cultural, geographical, and biological richness that it possesses, Rajasthan has emerged as one of the most popular tourist destinations in South East Asia. When it comes to the enduring impression that Rajasthan leaves on tourists, it is the state's culture, history, monuments, palaces, forts, and other heritage sites, together with its landscapes and animals, that contribute the most. About ten percent of India is comprised of the expansive state of Rajasthan, which spans 34.22 million acres. Approximately nine percent of this area is managed by the forest department, which has administrative jurisdiction over it. With three National Parks, three Tiger Reserves, twenty-seven Wildlife Sanctuaries, two Ramsar Sites, fourteen Conservation Reserves, and a large number of specialized faunal habitats.

Since the beginning of life on earth over 3.5 billion years ago, there have been as many as 500 million different species of plants, animals, and microorganisms that have inhabited this planet. In the course of the natural evolutionary process, many of them were wiped off the face of the planet; nevertheless, a few of them managed to leave behind their progeny and other living remains. The "garden lizards" and the "crocodiles" that we have today are the only living descendants of the Mesozoic era's gigantic reptiles, which were known as dinosaurs. Recent discoveries of an astounding insect variety in rain forests have compelled scientists to alter their estimations, despite the fact that we already have a knowledge base of around 1.5 million species. There might be anywhere from 5 million to 50 million different kinds of plants and animals on Earth. According to Peter Raven, there are around one hundred new species of plants being found every year. There are over 30 million different species now inhabiting this planet. Nevertheless, we have a significant lack of knowledge in this domain. There have been estimates as high as one hundred million. In example, we do not know the degree to which there is variety among the microorganisms that live in soil. The species that are around now are not here by luck; rather, they are the result of a protracted evolutionary process that has enabled them to survive via ecological adaptations in the face of fluctuating environmental circumstances throughout time and space.

Because various ecological parameters, such as microclimate, energy budget, photosynthesis, water regimes, surface runoff, soil temperature, and biotic interactions within an ecosystem are influenced by an ecosystem's vegetation, vegetation is a key factor in determining the status of an ecosystem (Tappeiner and Cemusca, 1996). Vegetation is a key factor in determining the status of an ecosystem. According to Mishra et al. (1997), the many kinds of vegetation that are found growing in a certain region have a reciprocal interaction with one another as well as with the environment, and together, they form the plant community of that region. The quantitative study of communities like these is termed phytosociology, and its primary goals are to characterize and categorize the vegetation in a meaningful way, as well as to explain or anticipate its structural pattern (Braun-Blanquet, 1932; Odum, 1971). This field of research was first developed in the early 20th century. Understanding the plant community in a terrestrial ecosystem is essential for determining the ecological sustainability of the region, the functioning of any community within it, and the management of flora and fauna that already exist in that region (Warger and Morrel, 1978; Sharma and Pandey, 2010; Mandal and Joshi, 2014).

Wild life Diversity in the Thar Desert

The desert of Rajasthan is home to a rather diverse array of animal species. Work on invertebrates is still under process, but much research has been done on the vertebrates, which have been discovered to have predominant "Shaharo-Iranian" affinities. These vertebrates are found in a range of desert settings, although only a few of them have been found to be habitat-specific. The early flocks of sand grouse consisted of between three thousand and four thousand individual birds. They only fly in groups of a few hundred now. Their population has also been significantly affected in the districts of Barmer, Jaisalmer, and Bikaner as a result of continuous droughts, which have drastically limited the supply of seeds for them. The story of the artiodactyls is not so dissimilar in this regard. Herds of black buck in the desert were very huge during the decades between the years 1890 and 1900. Now, the black buck has almost completely disappeared from the picture, with the exception of sanctuaries and the areas near Bishnoi community settlements. The Indian gazelle, also known as the chinkara, is currently only seen very infrequently. Before 1947, it was common to see herds of fifty to one hundred individuals. The lack of suitable grazing land in the desert is the primary factor contributing to the reduction in their population size.

Rajasthan

The arid region of Rajasthan the topography of the state of India varies greatly from place to place. It is highly known for the cultural variety it possesses in addition to its enormous natural resource wealth. There is no other place in the world that can lay claim to having a more diverse landscape than Rajasthan. This Indian state is home to both sweeping sand dunes and high hills, bitterly cold winters and sweltering summers, lush plains in the east and sparsely inhabited areas in the west.

The state of Rajasthan is the biggest in the country in terms of its total land area, which is 3,42,239 square kilometers (132,139 square miles). It may be found in the far northwestern region of India. According to its position on the globe, the state of Rajasthan may be found in both the northern and western hemispheres, with the majority of its territory lying to the north of the tropic of cancer. The Tropic of Cancer may be reached by traveling to the south of the town of Banswara. The new territory for the state extends from a latitude of 23°3' to 30°12' north and from a longitude of 69°30' to 78°17' east. The state has a maximum length of 826 kilometers from north to south (beginning in the Kona village of Sriganganagar district and ending in the Borkund village of Banswara district) and 869 kilometers from west to east (beginning in the Katra village of Jaisalmer district and ending in the Silana village of Dhaulpur district). This irregular rhomboid shape is also known as a heterogeneous quadrilateral.

The overall length of the state's borders is 5920 kilometers, of which 4850 kilometers are shared with other states and 1070 kilometers are shared with other countries. The international boundary between India and Pakistan runs along the western edge of the state and affects four of the region's most important districts: Sriganganagar (210 kilometers away), Bikaner (168 kilometers), Jaisalmer (464 kilometers), and Barmer (228 kilometers). The name for this route is the "Radcliffe Line." The states of Punjab and Haryana are located to the state's north, while Uttar Pradesh is located to the state's east, Madhya Pradesh is located to the state's south-east, and Gujarat is located to the state's south-west.

Churu District

The city of Churu is located in the arid area of the state of Rajasthan in India. It is regarded as the entrance to Rajasthan's Thar Desert and is located in the state of Rajasthan. The Churu District Administrative

Headquarters are located in this building. It is a junction station on the railway line to Bikaner and is located in the Thar Desert. The National Highway 52 that connects Sangrur and Ankola passes through here. It is located close to the ever-changing sand dunes of the Thar Desert and is home to huge havelis that include beautiful fresco paintings. Two of these havelis are named Kanhaiya Lal Bagla Ki Haweli and Surana Haweli. Both of these havelis had hundreds of little windows. Additionally, it possesses several excellent Chhatris. There is a holy seat of the Nath sect of Sadhus located close to the town. Inside, there are marble statues of their deities that are life-size, and there is a space to pray. A fort that was constructed around 500 years ago may be found in the middle of the town.

In the north-eastern corner of the state of Rajasthan, where circumstances were primarily desert, you'll find Churu, which also serves as the district's administrative center. This section of the desert is referred to as the 'Thar' region. The holy site of Tal Chhapar may be found in the Sujangarh tehsil of the district, precisely at the crossroads of 27 degrees 42 minutes north latitude and 74 degrees 20 minutes east longitude. The sanctuary may be found at an elevation of around 286.6 meters above Mean Sea Level. It extends across a total area of 6.94 square kilometers. The sanctuary can be found on state highways that run between Nokha and Sujangarh and is located at a distance of 85 kilometers from Churu, 160 kilometers from Bikaner, and 200 kilometers from Jaipur, the capital city of the state. The Tal Chhapar Sanctuary may be found in Shekhawati, which is located in Rajasthan. The sanctuary is home to a one-of-a-kind refuge for "the black buck," which is widely considered to be India's most graceful species of antelope. The Tal Chhapar sanctuary has an appearance similar to that of a normal Savannah due to the presence of open grassland and scattered acacia trees. The majority of the terrain in the sanctuary is quite flat, and shallow low lying regions are sprinkled throughout. The word "Tal" refers to the landing of a plane. The rain water travels through the low-lying sections that are shallow and collects in the little ponds that are only there seasonally. It is located directly in the path of travel for a great number of migrating birds, including harriers. In September, these birds may be seen traveling through this area. Harriers, eastern imperial eagles, tawny eagles, short-toed eagles, tawny eagles, short-toed eagles, sparrows, and small green bee-eaters, black ibis, and demoiselle cranes may be observed in the sanctuary until the month of March. Other birds that can be spotted there include sparrows. On the other hand, it is possible to observe skylarks, crested larks, ring doves, brown doves, and blue jays at any time of the year.

OBJECTIVE OF THE STUDY

1. To the study of Tal Chhapar Sanctuary.

2. Ecological studies of the flora of the sanctuary.

The part of Rajasthan that is known as the Tal Chhapar sanctuary may be located in the state's northeastern section, which is mostly characterized by dry weather. This section of the world is also a part of the desert area that is known as "Thar." Aridity is the most important factor that is considered while analyzing climate patterns. A climate is said to have a dry climate if, for the most of the year, the quantity of precipitation that falls is significantly less than the amount of water that may be lost via evaporation and transpiration, and if the amount of precipitation that falls supplies less than one third of the annual water need. Dry zones are defined by low and erratic rainfall distribution, high evapotranspiration rates, and significant shifts in both diurnal and annual temperature ranges. In addition to this, the rates of evaporation tend to be higher in dry regions.

The region that is the subject of this inquiry has a dry environment, with large temperature variations and relatively little yearly precipitation on average. The winter season lasts from November to March, while the summer season lasts from April to June. The winter season is longer than the summer season by three months. The commencement of the rainy season, which lasts all the way through September, occurs in July. During the wet season, the temperature does not often get higher than what is considered to be a comfortable level. The winters are equally as severe, and it is not unusual for the temperature to fall below freezing during the early morning hours of the night. After March, the temperature begins an unabated ascent that continues until it reaches its highest point in June, when the average daily high is 41.5 degrees Celsius and the average daily low is 29.3 degrees Celsius. The hottest weather of the year often occurs in June. During the summer months, the temperature in the dry air can occasionally reach as high as 49 degrees Celsius. Even if the temperature has started to drop a little bit by the middle of July, the oppressiveness of the weather is still there since the humidity has continued to rise. The temperatures throughout the summer months can reach dangerously highs, and the wind can sometimes be dry and dusty.

RAINFALL

This is where you will do your studying. It is not until the monsoon depression that is moving westward arrives in Rajasthan that a significant quantity of dense monsoonal air that is also quite moist is brought in. This makes it possible for weather patterns to evolve, which in turn makes it possible for rain to fall in an even distribution. This leads to a reduction in the amount of rainfall. This region does not normally receive a considerable quantity of precipitation as a result of the monsoon depressions repeatedly recurving and turning towards the north till they reach Madhya Pradesh.

Precipitation of 329.72 millimeters is measured on a yearly basis over the area that was investigated here. The majority of the precipitation that falls during the year occurs during the months of July and August. The precipitation information that was gathered from the area under study between January 2005 and December 2006 is presented in Table 3.1 and Figure 3.1 respectively. The years 2005 and 2006 are included in the scope of this study. The month of July in 2005 had the most amount of rainfall with 85.1 millimeters, while the months of January, February, March, April, October, and November had the lowest amount of rainfall with 0.0 millimeters. July had the highest amount of rainfall. In the year 2006, the greatest monthly rainfall total (92.1 mm) was recorded during the month of July, while the lowest monthly totals (0.0 mm) were recorded during the months of January and April. In 2005, the months of January, February, March, April, October, and November had the lowest monthly precipitation totals, while in 2006, January and April had the lowest monthly precipitation totals. The month that received the most precipitation was July 2006, with 92.1 millimeters, and the months that received the least amount of precipitation were January, February, March, April, October, and November of 2005, as well as January and April of 2006. The month that received the greatest rainfall was July 2006, with 92.1 millimeters.

TEMPERATURE

The season of summer officially begins around the middle of March, and by the month of April, the hottest part of the year has arrived. The direction that the wind blows in during the summer is from the south-west to the north-east. The sweltering winds, also known as "Loo" most of the time. The climate of the region is dry and marked by substantial temperature variations; this is one of the region's defining characteristics. The warmer months of the year bring with them evenings that are not only refreshing but also wonderfully cold.

November is the month that officially kicks off the winter season. The months of December and January have the average temperatures that are the coldest overall. exhibit, respectively, the maximum and lowest temperatures that were observed in the study region between January 2005 and December 2006, expressed in degrees Celsius. These temperatures were recorded at the research region. In the year 2005, the warmest month was June, with an average temperature of 48.9 degrees Celsius, while the coldest month was January, with an average temperature of 1 degree Celsius. In the year 2006, the average high temperature for the month of June was 46.1 degrees Celsius, while the average low temperature for January was 1.7 degrees Celsius. Both of these temperatures are in degrees Celsius. As a result, taking into account the period of time beginning in January 2005 and ending in December 2006, the month of June 2005 had an average temperature of 48.9 degrees Celsius, whereas the month of January 2005 had an average temperature of 1.3 degrees Celsius.

RESIDUAL MOISTURE IN THE AIR

The monsoon season, which begins in May and lasts until September, is characterized by relative humidity levels that are typically higher than 60%. This is due to the fact that the rainy season coincides with the monsoon season. The relative humidity during the summertime typically drops below 30 percent, making it the season with the lowest amount of precipitation overall. The research that was carried out on relative humidity from January 2005 to December 2006 discovered that the greatest values were found to be recorded during the months of January, February, August, and December. This was the conclusion drawn from the outcomes of the study that was carried out. This was the case each and every time over the length of the time allotted for the research. In 2005, the relative humidity reached its highest average of 72.0% during the month of August, while it reached its lowest average of 15% during the month of May. In 2006, the months of January and December saw the highest average relative humidity, which was 81.0 percent. On the other hand, the month of May experienced the lowest average relative humidity, which was 21.0 percent. As a direct result of this, over the span of time beginning in January 2005 and ending in December 2006, the months of January and December 2006 had the average highest relative humidity of 81.0%, whilst the month of May 2005 had the average lowest relative humidity of 15%. This was the case across the whole time period. The findings of the climatological study that was conducted on the location that was the subject of the inquiry showed that the area has a desert climate, which is characterized by extreme temperature swings and a lack of precipitation. The fact that xerophytes and halophytes are both able to thrive in this environment is evidence that the climate in this region is suitable for a wide variety of plant life. The huge floral diversity that can be found in this region is evidence that the climate in this location is suitable for a wide range of plant species.

PHYTODIVERSITY

In the state of Rajasthan, there are a total of 1,961,500 square kilometers of land that are classified to be desert. In terms of the physiological qualities it possesses, it is an extension of the Sahara Desert to the east. The Thar desert, in its whole, is composed of both moving and stagnant masses of sand throughout its entirety. One of the many regions that come together to form the state of Rajasthan is called Churu, and it can be found in the northern part of the state in Rajasthan. The wild animal sanctuary known as Tal Chhapar can be found in the Sujangarh Tehsil, which is part of the Churu district, which is in the north-eastern part of the state of Rajasthan. Additionally, the Churu district is in the north-eastern part of the state. The Blackbuck refuge has a total amount of land that is comparable to 790 hectares. This region is protected for the Blackbuck. The climate in the Tal Chhapar is characterized by both extremes: during the summer months, it may be almost intolerably hot, and during the winter months, it can be painfully cold and dry. Both of these conditions are difficult to

bear. At the same time, there is a simultaneous occurrence of strong wind speed, extremely low precipitation totals, and extremely high temperatures. The climate of this region is characterized by low relative humidity, excessive evaporation for the quantity of precipitation that falls, and insufficient precipitation overall. All of these factors contribute to the overall lack of precipitation. There has been an overall paucity of precipitation as a result of all of these variables.

During the wet season, there is a good chance that water will be present in the many cracks and ponds that are spread out over Tal Chhapar. On the other side, this becomes a limitation that restricts what may be done from the end of winter to the beginning of the monsoon. The water that gathers in water storage tanks or ponds during the summer months or other times of year when there is an abundance of precipitation. There is no other kind of plant or organism outside water plants and algae that can count toward the requirement being satisfied. This means that the only plants that count are those that live in water. Precipitation, which can come in the form of rain or snow, is the only natural supply of water that can be consumed by the many varieties of flora that have managed to survive.

The climate in the Tal Chhapar is characterized by both extremes: during the summer months, it may be almost intolerably hot, and during the winter months, it can be painfully cold and dry. Both of these conditions are difficult to bear. This area has a climate that is characterized by extremes in temperature, severe drought, high wind velocity, low relative humidity, evaporation that greatly outpaces precipitation, and insufficient amounts of rainfall. These climatic features contribute to the region's overall aridity. The terrain in this area exhibits the features of the climate that prevail here. These weather conditions also come with a low relative humidity, which is something else that comes along with it. The protected region of Tal Chhapar is home to a diverse array of plant life, both on land and in water, which helps to contribute to the rich phytodiversity that can be found there. Xerophytes and halophytes are the two categories of plants that are typically thought of as belonging to the terrestrial biome.

CONCLUSION

The land that is known as the Tal Chhapar Wildlife Sanctuary can be discovered in the Churu district, which is located in the northeastern part of Rajasthan. It exhibits a high level of phytodiversity, which contains the plants that are useful for food, fodder, and medical uses. Phytodiversity may be measured in terms of plant species. This region is distinguished by its arid environment, temperature extremes, and annual precipitation levels that are closer to normal. This suggests that these plants are able to adapt to such an environment, and the fact that they have the potential to be used as fodder has a positive impact on the synthesis of primary metabolites. In addition, the fact that they have the capacity to be used as fodder has a positive influence on the synthesis of secondary metabolites. Investigations on the Wide Range of Plants The area that is the subject of this study is home to a diverse range of plant life, including plants that are adapted to flourish in xerophytic, mesophytic, halophytic, hydrophytic, and parasitic conditions respectively. The area that is the subject of this inquiry is home to a number of plant groupings and species, each of which represents a different genus of plant. Poaceae and Fabaceae are the two plant families that predominate and are the most abundant in the area that is the focus of the inquiry. [S]uch plant families are found in the greatest abundance. It has been asserted that the study area is home to a total of fourteen different communities. Climatological Studies

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