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A WEED MAPPING FRAMEWORK FOR THE INDIAN WILD LIFE SANCTUARY REGION AT BHAINSRORGARH

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ABSTRACT

As agriculture plays a significant role in Indian Economy, it is very important that farmers are provided with all necessary information and support to maximize their yield. In this regard, weed management plays a significant role in enhancing the quality of the yield. Weeds compete with the crops for space, nutrients from the soil, water and space which are the primary factors for growth of crops. The objective of this study is to analyse the weeds in the Bhainsrorgarh wild life sanctuary region situated in the Chittorgarh district in South East Rajasthan. The people living in more than 20 villages in this region are dependent on agriculture for their livelihood. The occurrence of weeds depends on the season, life span and the location. The study incorporates morphological analysis of 15 types of weeds for their diversity indices, richness index, frequency, relative density and importance value index. The findings of the study will benefit the forest department and the local community in understanding the impact of these weeds on their harvest and thereby help the decision makers towards an effective and efficient control on weed management.

Keywords: *Weed Analysis, Morphological Analysis, Bhainsrorgarh Wild Life Sanctuary.*

Introduction

"Weed" is applied to many plants that grow and reproduce aggressively and invasively. In general, therefore, a weed is a plant that is considered by the user of the term to be a nuisance. They are usually the native plants which are best adapted to the environment where they grow, so can easily out-compete with our crop plants. It traditionally has been defined as "A herbaceous plant not valued for use or beauty, growing wild." According to Benchley (1920) weed is a plant that grows so luxuriantly that it chocks out of all of Weeds are able to decrease land value, reduce crop choice and act as other hosts for pests and infections in the harvest land. Weed advancement can decrease the making of Fresh Fruit Branch (FFB) by 20% in light of competition against enhancements and allelopathic substances that are destructive to plants. Additionally, weed invasions also fill in as host options to energize disease issues and pathogens, decrease the yield estimate of the industry raise production costs, and increase the likelihood of fires in annual harvests and plantations (Sidik*et al* 2018). her plants that possess more valuable nutritive properties. According to Gohil (2010) "A weed is a plant out of place".

The present paper attempt to highlight of weed diversity in bhainsrorgarh wild life sanctuary.in this survey we have focus hypothesis based on in study area does association of forest weeds identify and analysis data.

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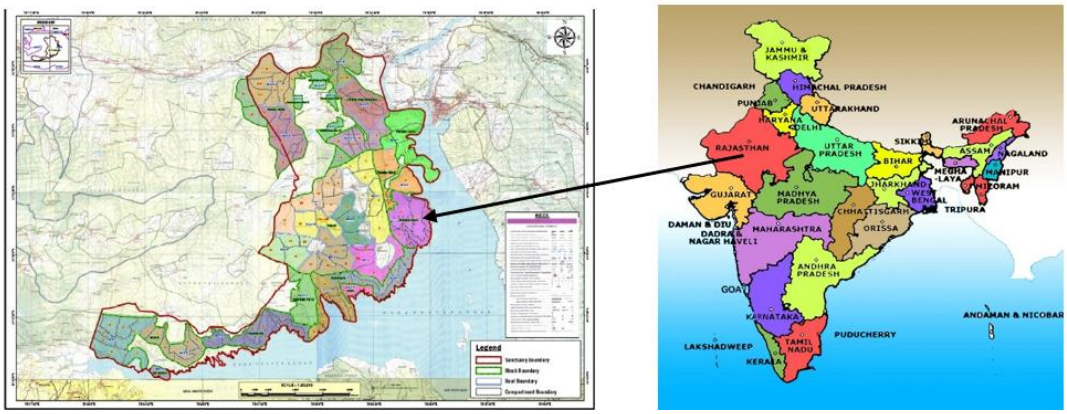
Area of Study

Study area is Bhainsrorgarh Wildlife Sanctuary, it's in Chittorgarh district of Rajasthan. It is located in the hilly area of Chittorgarh and declared as a sanctuary in 1983. The reason for creating such a sanctuary is to protect wild flora and fauna. It is situated all around the banks of Chambal River and spread over an area of 229 km^2. It's been the biggest wild animal number ever since it was created. The sanctuary is far around 55 km west of Kota. It has many water bodies where a crocodile point is made. It is located 6 km away from Rawatbhata. Most rainfall is seen

in July and august. On average, July is the wettest month with the 8.3 inch of precipitation. The average amount of annual precipitation is 26.5inch. The climate of BWLS is quite dry and parched. The average temperature in summer falls between 43.8^0c – 23.8^0c. The winter season lasts from October to February.



Material and Methods

Sampling Design

Nested quadrat (1 m × 1 m) within 10 m × 10 m quadrat will be used and random sampling will be conducted in this study. According to Whittaker (1977) there are several reasons that nested vegetation sampling configuration looks encouraging. In Modified-Whittaker plot the shape and spatial distribution of sub-plots in the main plot has been changed to overcome the problem of autocorrelation. Also, nested sampling approach captures a significantly higher percentage of total species richness than other techniques (Shackleton, 2000; Anderson and Hoffman 2007).

Data Collection

- **Herbarium Specimen Collection**

Plant specimens will be collected by carefully removing the whole plant including roots, stem, leaves, or flower using shovel and secateurs. The plant will be chosen based on its maturity such as the textures of the leaves and colures of the weeds, free from damages caused by diseases and insects to avoid misidentification. Each specimen will be clearly labelled with field information that includes the ID number, sampled area, habitat, frequency, plant description, plant habitat, collector name, other authorities, collection number and date of collection. Every specimen will be photographed against black cardboard for record keeping. General observation will be made to provide supporting information and further characterization on weeds species composition and diversity in the Bhainsrorgarh Wildlife Sanctuary.

- **Specimen Preservation**

Ethanol 70% preserved specimens with height around 15 to 20 cm or those with fruits will be handled cautiously alongside the leaves and roots and kept in suitable position on blotting papers verified by another blotching paper to remove dampness. These papers will be kept on a smooth surface and pressed by an adequate weigh that was placed on the uppermost blotching paper weigh will expelled temporarily on the following day and specimens will be temporarily transferred to a dry blotting paper before placing the weigh again. This is to ensure that specimens hold its shaded and does not end up fragile or singed by removing the moisture quickly, while utilizing a moderate heat. Specimens will be oven dried between 3-7 days at University of Kota laboratory

Specimen Identification

Dried specimens will be collected and preserved for further identification. Specimens will be pre-identified according to their family, genus, and species with aid of the supporting information recorded on the pocketbook, and various taxonomic method. Specimen identified with the help of existing literature (Bentham Hooker)

Data Analysis

The data analysis of finding observation density, frequency will be utilized to calculate the diversity of a species in community.

- **Abundance Parameter**

The vegetation data were analyzed for % density (D) and frequency (F) (Adnan, 2020).

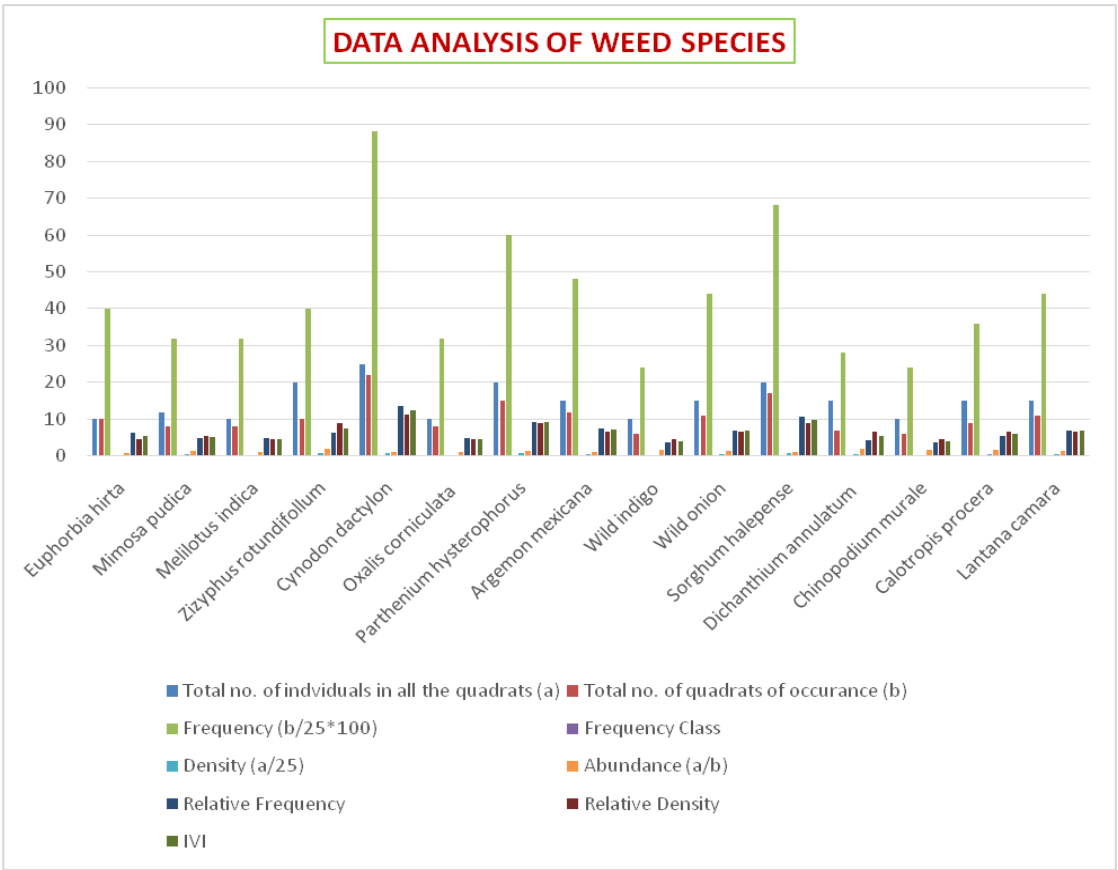
- **Importance Value Index (IVI)**

The degree of dominance for a particular species in an area will be calculated from the values of relative frequency and relative density (Mueller-Dombois and Ellenberg, 1974) respectively

Result and Discussion

The present study deals with the documentation of the total number of weeds species observed. Some weed grows widely in this area. A total of 15 weed species identified belong to different families and they have different morphological characters

Quadrats (Total Number of Quadrats=25)											
S.N.	**Species**	**Family**	**Total no. of individuals in all the quadrats (a)**	**Total no. of quadrats of occurance (b)**	**Frequency (b/25*100)**	**Frequency Class**	**Density (a/25)**	**Abundance (a/b)**	**Relative Frequency**	**Relative Density**	**IVI**
1	*Euphorbia hirta*	*Euphorbiaceae*	10	10	40	B	0.4	1.00	6.25	4.50	5.38
2	*Mimosa pudica*	*Fabaceae*	12	8	32	B	0.48	1.50	5.00	5.41	5.20
3	*Melilotus indica*	*Fabaceae*	10	8	32	B	0.4	1.25	5.00	4.50	4.75
4	*Zizyphus rotundifollum*	*Rhamnaceae*	20	10	40	B	0.8	2.00	6.25	9.01	7.63
5	*Cynodon dactylon*	*Poaceae*	25	22	88	E	1	1.14	13.75	11.26	12.51
6	*Oxalis corniculata*	*Oxalidaceae*	10	8	32	B	0.4	1.25	5.00	4.50	4.75
7	*Parthenium hysterophorus*	*Asteraceae*	20	15	60	C	0.8	1.33	9.38	9.01	9.19
8	*Argemon mexicana*	*Papaveraceae*	15	12	48	C	0.6	1.25	7.50	6.76	7.13
9	*Wild indigo*	*Fabaceae*	10	6	24	B	0.4	1.67	3.75	4.50	4.13
10	*Wild onion*	*Amaryllidaceae*	15	11	44	C	0.6	1.36	6.88	6.76	6.82
11	*Sorghum halepense*	*poaceae*	20	17	68	D	0.8	1.18	10.63	9.01	9.82
12	*Dichanthium annulatum*	*Poaceae*	15	7	28	B	0.6	2.14	4.38	6.76	5.57
13	*Chinopodium murale*	*Chinopodiaceae*	10	6	24	B	0.4	1.67	3.75	4.50	4.13
14	*Calotropis procera*	*Apocynaceae*	15	9	36	B	0.6	1.67	5.63	6.76	6.19
15	*Lantana camara*	*Verbenaceae*	15	11	44	C	0.6	1.36	6.88	6.76	6.82
	Total		222	160	640		8.88	21.77			



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