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ESTIMATION OF THE FREQUENCY OF THE PLANT SPECIES IN THE COMMUNITY IN MOTIDA PASTURELAND, BHINDER, UDAIPUR, RAJASTHAN.

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ABSTRACT – India has a great Biodiversity with four Biodiversity hot spots including The Himalaya Region, Indo Berma Region, The Western Ghats and the Sunda Land. About 1/3rd part of the vegetation part covered by grasslands or pasturelands in it. In reference to Rajasthan, there is a vast stretched area of pastureland situated at all sites. To study or visualized the areas by perambulating we noticed all the pastureland sites including Udaipur and do practices to find out the frequency of the plant species by quadrate sampling method.

A quadrate is typically a frame constructed of the equipments that is placed directly on the top of the vegetation. Commonly they are called plots.
Quadrates are randomly distributed plots that allows researcher to collect data and use it to make assumptions about the entire study area or the studied Species quadrates are used in many different scientific disciplines like vegetation assessments including plant density, abundance, frequency and plant biodiversity. The aim of this study in vegetation is to estimate the frequency of the plant species present in the plant community of Motida Pastureland area.

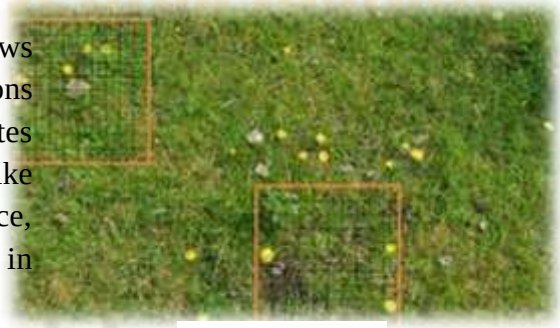


Figure 1 Quadrates

Frequency indicates the number of times a plant species is present within a given for sampling the quadrates. It is measured by noting the presence of species in random sample areas which are distributed as widely as possible. Throughout the area of study frequency is usually expressed as a percentage and is sometimes called frequency index. The concept of frequency indicates the probability of finding a species in a series of quadrates examined in an area of interst.

Key words - Pastureland, Frequency, quadrate, sample, nails, occurrence.

Introduction – Pasturelands in a narrow sense are distinguished from rangelands by being managed through more intensive agricultural practices of seeding, irrigation and the use of fertilizers. It can be described by

two pinpoints t, the first is plants (such as grass) grown for the purpose of fodder especially of grazing animals and secondly land or a plot of land used for grazing.

Rajasthan is predominantly an agrarian state with a geographical area of 34.224 lac hectors. This make this state a largest state of the country where the area of forest is of 26.51 lac hectors, the cultivated area is 2.56 lacs hectors (total 74.9% of the total geographical area). The rest of the area is covered by the pastureland in the Rajasthan.

STUDY AREA – The state of Rajasthan consists of total 33 districts and recently the government of Rajasthan had declared 17 new districts and hence at present there are 50 districts in Rajasthan. In the Southern part of the state, Udaipur the City of Lakes is situated. Udaipur is further divided into 17 Blocks out of which Bhinder is one of them. We have studied and discussed about the pastureland of Motida Panchayat which is one of the 52 Panchayats of Bhinder Block.

Figure 2 Motida Panchayat

Motida Panchayat area is actually a rich area with a verity of plant species or plant community. The plant species are of Commercial Values as food, fodder, fuel, medicines and forage. It is situated 63 km apart from the Udaipur 6 km far from Bhinder. Three out of total Ten Villages of this area have a vast pastureland with two main water streams namely Jadu Dem and Ratavela River Stream. Our study is conducted selecting three different sites of the area as:-

(1) Near the Ratavela Rivers Stream
(2) Near the Road side
(3) Under the Tree

For determining the frequency index, quadrate sampling technique is preferred in the field of pastureland separately and measurement of the frequency using frequency class chart.

MATHODS AND MATERIAL – The concept of frequency represents the probability of the findings of a species in a series of quadrates examined in a particular field. For this purpose the following steps followed: -

a. Three of the sites as discussed above were selected
b. Material required was collected as nails, thread, scale, Notebook for reading etc.
c. With the minimum size of quadrates, at least 05 quadrates of the study area were examined.
d. Occurrence of each of the species were recorded perfectly.
e. The absence of the species in a quadrate was mentioned with the symbol (-).
f. The following formula used to calculate the frequency percentage: -

$$\text{Frequency\%} = \frac{\text{No of Quadraare with occurance of species}}{\text{Total number of quadrates studied}}$$

Making use of above methods and materials, the goal of the study of determining the frequency of the plant species in a particular area was achieved.

OBSERVATION TABLE : Prepared the observation table using the Raunkier's Law which says "in and association, several species prosper as the expenses of the rest, thus producing at one extreme a class with relatively few species but a great many individuals and at the other extreme another class with a very small number of individual representing rare and sporadic"

SN	Frequency Range	Frequency class
1	1-20%	A
2	21-40%	B
3	41-60%	C
4	61-80%	D
5	81-100%	E

For the Soil Sample collected from the area near Ratavela Water Stream

Name of species	No. of Individuals in each quadrate					Total number of individuals of species	No. of quadrates of occurrence	Total no. of quadrates studied	% frequency	Frequency Classes
	1	2	3	4	5					
Lantana camara	3	-	12	9	-	24	3	5	60%	C
Ageratum spp.	6	-	4	-	-	10	2	5	40%	B
Calotropis procera	2	-	-	3	2	07	3	5	60%	C
Euphorbia hirta	17	8	-	-	9	34	3	5	60%	C
Cynodon dectylon	14	12	5	18	-	49	4	5	80%	D
Parthenium spp	3	12	9	10	6	40	5	5	100%	E
Catharanthus rosieus	2	-	8	5	-	15	3	5	60%	C
Ficus recemosa	8	12	13	-	15	48	4	5	80%	D

Maximum Frequency : Parthenium spp

Minimum Frequency : Ageratum spp.

For the Soil Sample collected from the area From Road Side:

Name of species	No. of Individuals in each quadrate					Total number of individuals of species	No. of quadrates of occurrence	Total no. of quadrates studied	% frequency	Frequency Classes
	1	2	3	4	5					
Lantana camara	4	-	2	4	-	10	3	5	60%	C
Ageratum spp.	2	-	3	1	-	6	3	5	60%	C
Calotropis procera	1	2	1	-	2	6	4	5	80%	B
Euphorbia hirta	3	2	2	2	3	12	5	5	100%	E
Ziziphus spp.	-	3	-	-	2	5	2	5	40%	B
Cynodon dectylon	4	-	-	2	2	8	3	5	60%	C
Parthenium spp	3	2	3	-	1	9	4	5	80%	D
Argemone maxicana	1	-	3	2	1	7	5	5	100%	E

Maximum Frequency : Euphorbia hirta
Minimum Frequency : Ziziphus spp

For the Soil Sample collected from the area Under the Tree

Name of species	No. of Individuals in each quadrate					Total number of individuals of species	No. of quadrates of occurrence	Total no. of quadrates studied	% frequency	Frequency Classes
	1	2	3	4	5					
Lantana camara	8	6	-	13	-	27	3	5	60%	C
Ageratum spp.	2	8	3	7	-	20	4	5	80%	D
Ficus Recemosa	3	8	8	9	2	30	5	5	100%	E
Euphorbia hirta	9	12	11	6	15	53	5	5	100%	E
Cynodon dectylon	14	19	21	25	-	79	4	5	80%	D
Catharanthus rosieus	6	4	-	3	-	13	3	5	60%	C
Aloevera	1	-	3	-	-	4	2	5	40%	B

Cymbapogon martinii	8	9	-	-	22	39	3	5	60%	C

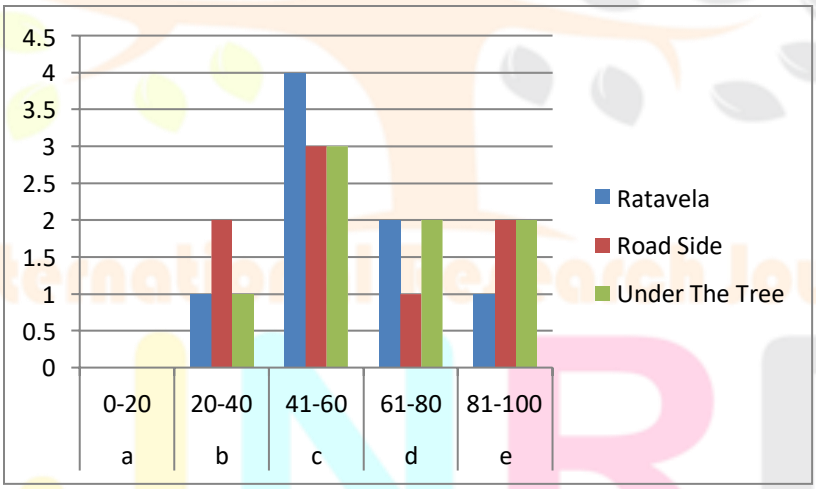
Maximum Frequency : **Euphorbia hirta**
Minimum Frequency : **Aloevera**

Result & discussion- *Examining the soil samples from the three different sites the followingresult observed according to the Raunkier's Law*

1. Near Ratavela River Stream	:	C > D > E = B > A
2. Near Road Side Area :	:	C > E = D > B > A
3. Under The Tree	:	C > E = D > B > C

Graphically the results of Raunkier's Frequency Law as applied on the samples collected fromthree sites in the Motida Pastureland can be represented as under : -

Frequency Class	Frequency Range	Ratavela	Road Side	Under The Tree
A	0-20	0	0	0
B	20-40	1	2	1
C	41-60	4	3	3
D	61-80	2	1	2
E	81-100	1	2	2



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