Expt: 2 Study of plant population density by quadrat method

Aim:

To study the plant population density by the quadrat method.

Materials Required:

Nail.

Thread

Hammer

Procedure:

In the selected site of study, make a 1 m x 1 m quadrat with the help of nails and thread and divide it into sixteen quadrats, each consists of 25 square meter.

Hammer the nails firmly and make sure that the vegetation is not damaged while laying the quadrat.

List the names of the plant species seen in each quadrat (if the name is not known mark these as species A or B etc., and the same species if seen in other quadrats assign the same alphabet).

Count the number of individuals of each species present in the quadrat and record the data in a table.

Observations:

Record the total number of species seen in the sixteen quadrats.

This will give an idea about the composition of the vegetation.

There will be difference in the species composition in the quadrats made in shady areas, exposed areas with bright sunlight, dry or wet areas etc.

Sl. No	Plant Species	QUADRAT																	
		No. of individuals per quadrat																	
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**Total Species**	**Total Quadrats**
1	***Azadirachta indica***	1		3		4		1	3	1		3	1		3	2		**22**	**10**
2	***Bougainvillea spectabilis***		2	1	2	1	2	1	2	1	1	1	1	1	3		1	**20**	**14**
3	***Caesalpinea pulcherrima***		1			1		2		1		2		1		2	2	**12**	**8**
4	***Clerodendron inerme***	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	**17**	**16**
5	***Mangifera indica***	1			1		2		1			1		1		1		**8**	**7**
6	***Pithecolobium dulce***	2		3		4	3	4		3	2		3	3	2		3	**32**	**11**

Quadrat Result						
Sl.No	Plant Species	Total number of individuals in all the Quadrats	Total no. of quadrats in which the sps. occurred	Total no. of quadrats studied	Population Density	Frequency Percentage
		N	**A**	**B**	**N/B**	**A/BX100**
1	***Azadirachta indica***	22	10	16	**1.38**	62.5
2	***Bougainvillea spectabilis***	20	14	16	1.25	**87.5**
3	***Caesalpinea pulcherrima***	12	8	16	0.75	50
4	***Clerodendron inerme***	17	16	16	1.06	**100**
5	***Mangifera indica***	8	7	16	0.50	43.75
6	***Pithecolobium dulce***	32	11	16	**2.00**	68.75
7	***Ficus benjamina***	5	3	16	**0.31**	18.75

Conclusion:

The density of the plant population is calculated by the following equation:

$$\text{Density} = \frac{\text{Total number of quadrats in which the species occurred (N)}}{\text{Total number of quadrats studied (B)}} = \frac{32}{16} = 2.0$$

On the basis of density, the community is being dominated by the species: ***Pithecolobium dulce.***

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