



SPECIES COMPOSITION AND SEASONAL PATTERNS OF BUTTERFLIES AT PERI- URBAN AREAS NEAR PUNE, MAHARASHTRA



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INTRODUCTION

What are Butterflies?

- Order Lepidoptera
- Important Pollinators
- Vibrant, attractive, charismatic
- Feed on nectar, rotting fruits, dung
- >1500 butterflies in India
- >330 butterflies in the western ghats.



Delias eucharis

Why butterflies for this project?

- Ecological indicators
- Can be easily seen
- Taxonomy, status and distribution known



Junonia orithya

Why Saswad?

- Site of many typical grassland species
- Mosaic of habitats
- Rapidly expanding urban sprawl

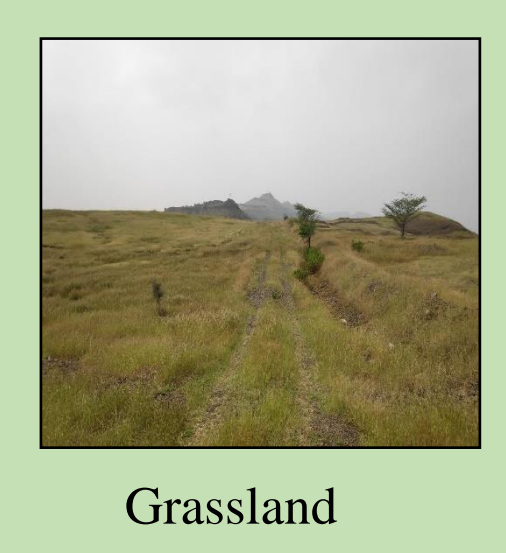
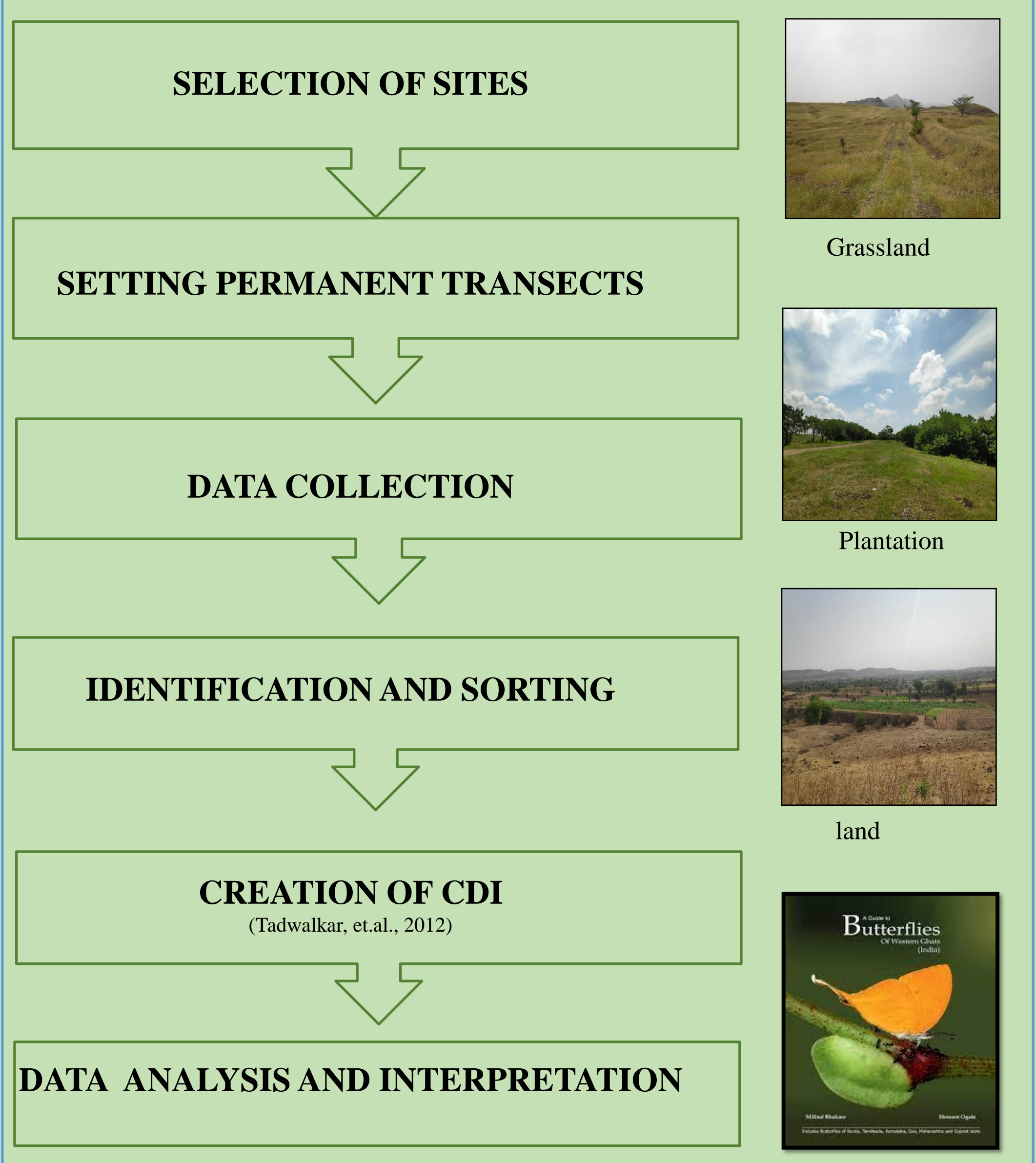


Saswad-Waghapur area

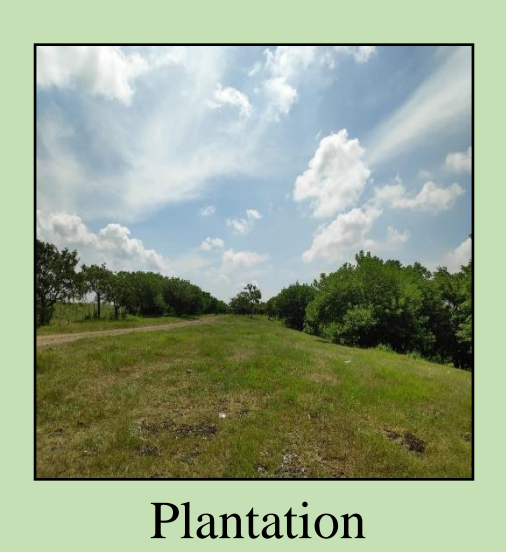
OBJECTIVES

1. To study the Butterfly Diversity, Abundance and Distribution at Saswad.
2. To study the Seasonal Variation Patterns of Butterflies at Saswad.
3. To understand the effect of various anthropogenic disturbances on Butterflies

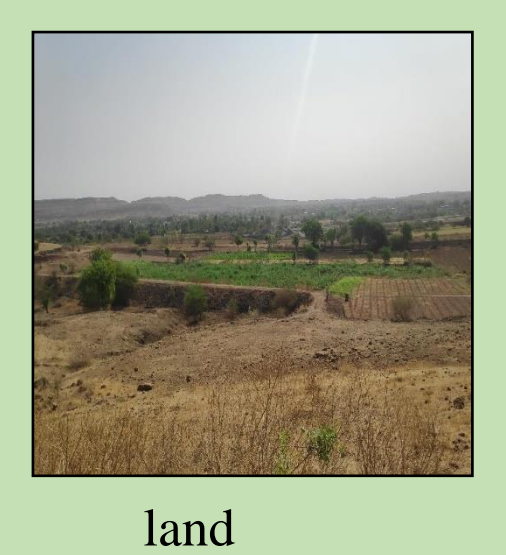
MATERIALS AND METHODS



Grassland



Plantation



land

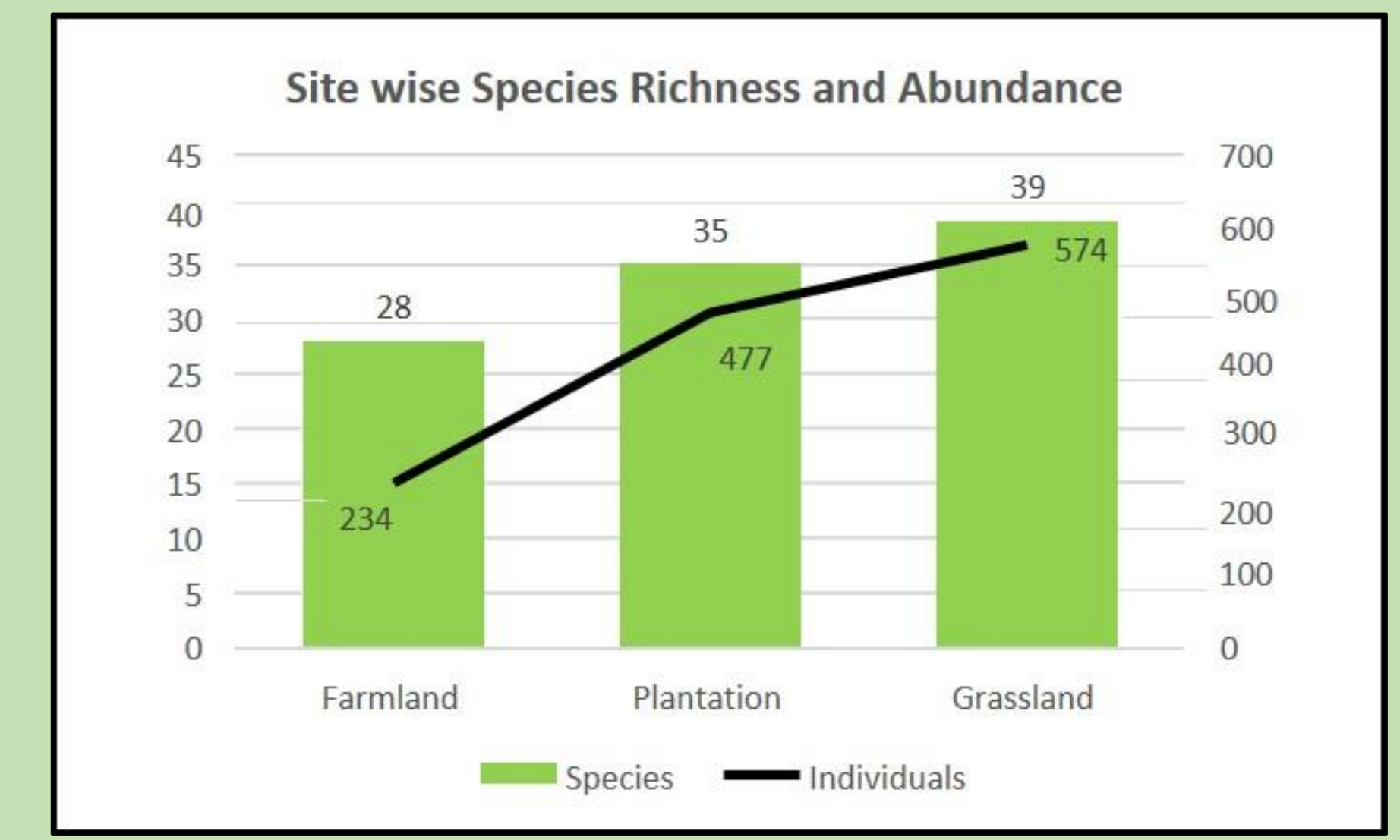


RESULTS

1. TOTAL DIVERSITY:

	Family	Genera	Species	Individuals
Farmland	5	21	28	234
Plantation	5	24	35	477
Grassland	4	30	39	574
Total	5	37	53	1285

2. SITE WISE DIVERSITY



	Farmland	Plantation	Grassland
Taxa_S	28	35	39
Individuals	234	477	574
Shannon_H	2.70	2.73	2.64
Dominance_D	0.09	0.10	0.12
Evenness_e^H/S	0.53	0.44	0.36
Margalef	4.95	5.51	5.98
Equitability_J	0.81	0.77	0.72
Fisher_alpha	3.30	8.70	9.46

3. SITE SIMILARITY AND OVERLAP

Plantation and Grassland closest in terms of composition

	Farmland	Plantation	Grassland
Farmland	1.000	0.475	0.449
Plantation	0.475	1.000	0.719
Grassland	0.449	0.719	1.000

RESULTS

4. SEASONAL VARIATION

	Late Monsoon	Early Winter	Late Winter	Spring	Summer
Hesperiidae	1	1	0	0	0
Lycaenidae	8	8	8	4	1
Nymphalida	16	13	6	8	1
Papilionidae	4	2	2	1	1
Pieridae	7	6	7	4	1
Total species	36	30	23	17	4
Total Individuals	596	390	150	107	42

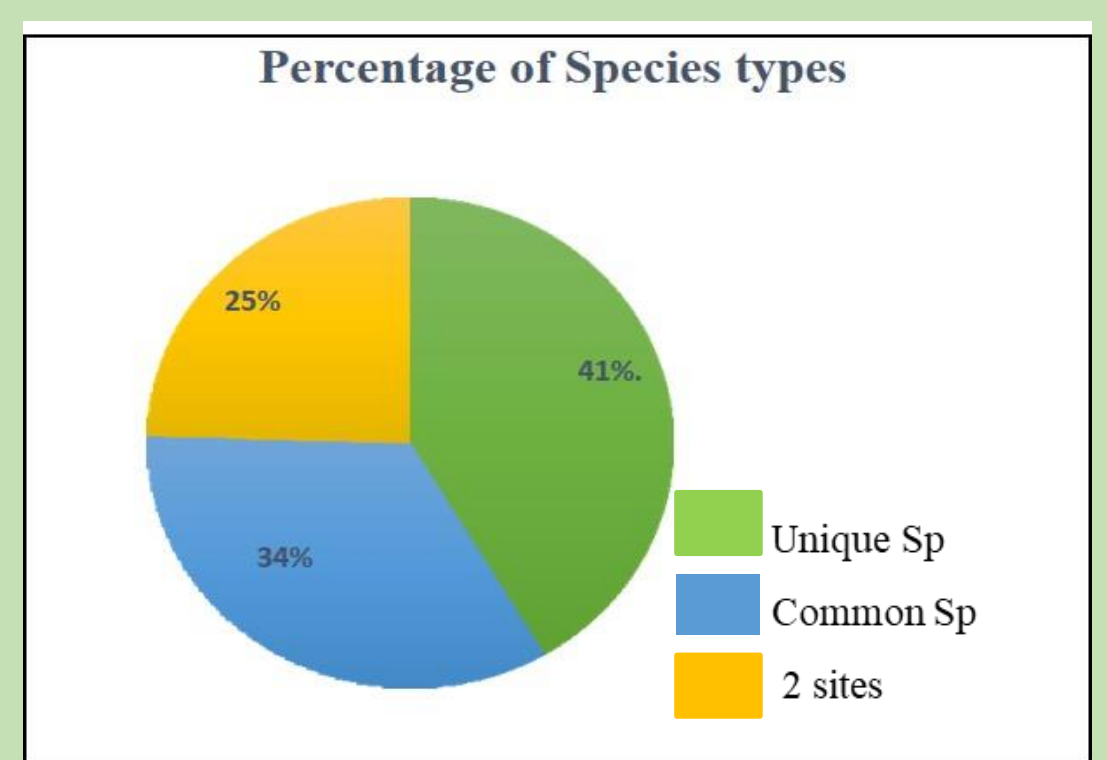
	Late Monsoon	Early Winter	Late Winter	Spring	Summer
Taxa_S	36	30	23	17	4
Individuals	596	390	150	107	42
Shannon_H	0.18	0.11	0.10	0.33	0.50
Dominance_D	2.36	2.48	2.59	1.69	0.84
Evenness_e^H/S	0.29	0.40	0.58	0.32	0.58
Margalef	5.48	4.86	4.39	3.42	0.80
Equitability_J	0.66	0.73	0.83	0.60	0.61
Fisher_alpha	8.43	7.58	7.58	5.70	1.09

5. CUMULATIVE DISTURBANCE INDEX

The CDI scores indicate Farmland=most disturbed, Neg.correlation between diversity and CDI at grassland, farmland

	Farmland	Plantation	Grassland	Total per season
Late Monsoon	8	4	6	18
Early winter	8	4	6	18
Late Winter	8	4	9	21
Spring	10	3	9	22
Summer	10	3	9	22
Total per site	44	18	39	
Spearman coefficient	-0.866	0.740	-0.866	

6. UNIQUE SPECIES



	Total species	Unique Species
Farmland	28	5
Plantation	35	7
Grassland	39	10



Spindasis icis at grassland



Tarucus balkanicus at grassland

DISCUSSION AND CONCLUSION

1. **Species richness**- higher at wild areas than impacted agricultural areas
2. **Species diversity**- similar in all the three sites
3. **Grassland and Plantation**- Similar in Species Composition
4. **Unique species**- Grasslands > Plantation > Farmland
5. **Seasonal diversity** – Monsoon > Winter > Spring > Summer
6. **Disturbance impact**- Increase in Fires and Construction = Decrease in Diversity
- 7.7 **Species**- Protected under WPA- Importance of the area in conservation



Castalius rosimon



Hypolimnas misippus



Cepora nerissa

KEY REFERENCES

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