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Effect of anthropogenic factors and climatic variables on butterfly diversity

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❖ Introduction and Aim

Butterflies are good bioindicators for biodiversity assessment, therefore habitat destruction can affect the butterfly communities.

The study has been conducted at Twelve field sites in Southern West Bengal, India.

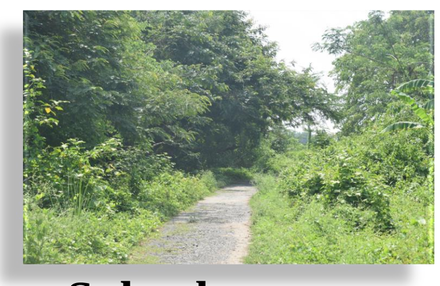
The aim of the study is :

1. To study the diversity profile of butterfly populations in anthropogenically changing habitats.

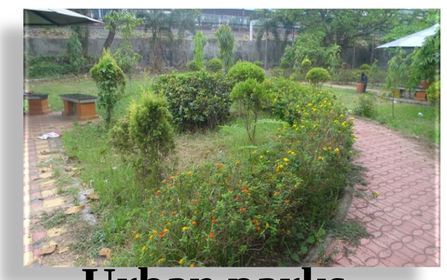
2. To analyse the effect of temperature and humidity on butterfly diversity.

❖ Study Sites

Rural areas



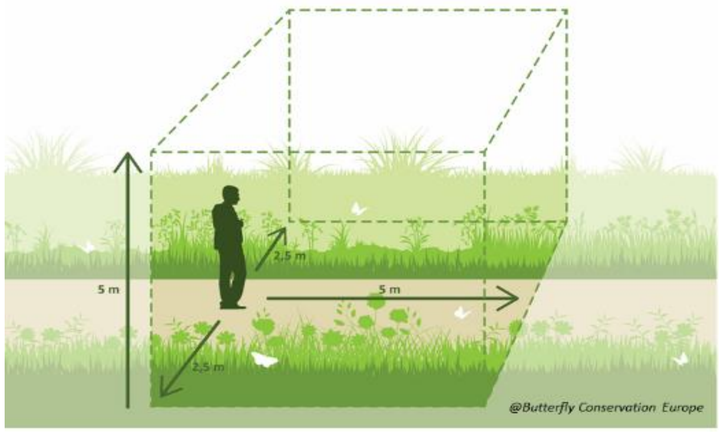
Suburban areas



Urban parks

Reserve Forests

❖ Methods



Pollard Walk Method

500m transect lines will be considered in each study sites.

Butterflies were recorded by ‘Pollard Walk’ transect method (Pollard and Yates, 1993), seasonally.

*The authors declare no conflict of interest

❖ Results

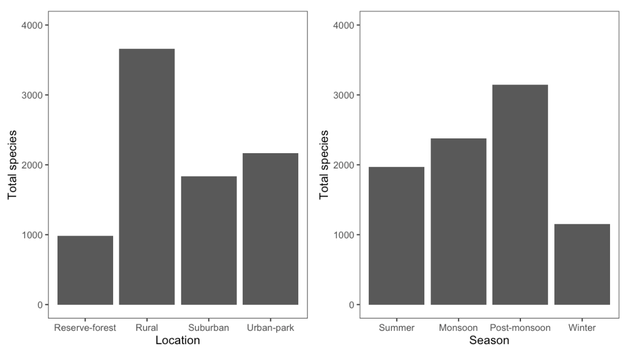


FIG 1:Total species in different locations and seasons

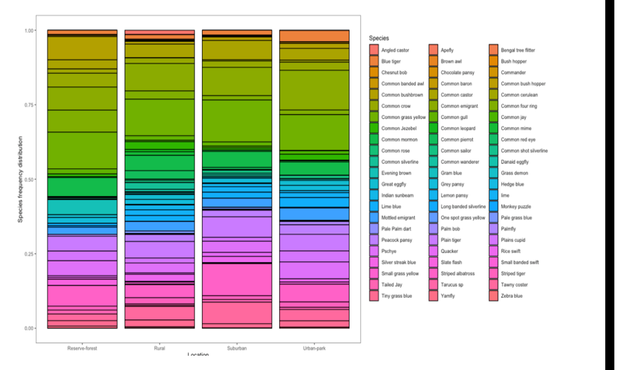


FIG 2:Frequency of individual species at different sites, across all season

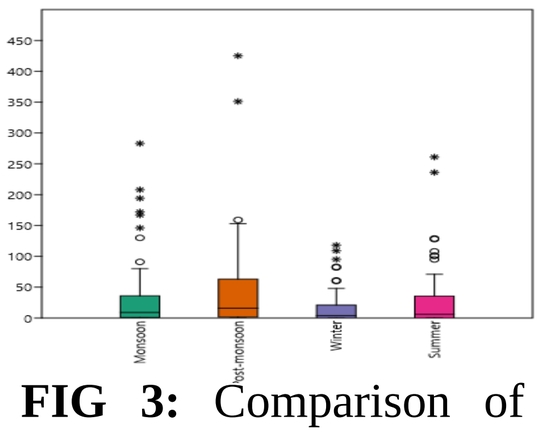


FIG 3: Comparison of species diversity across the season,$p < 0.05$

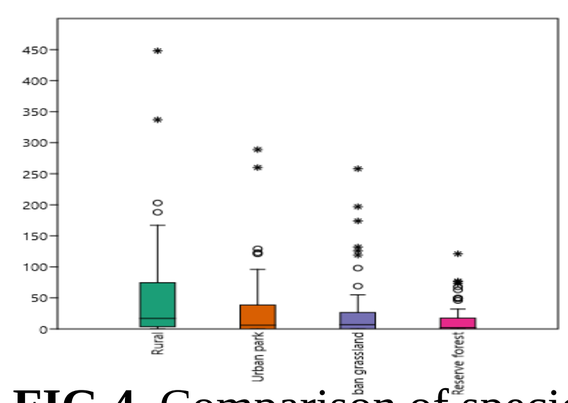


FIG 4. Comparison of species number and individuals across four different sites. $p < 0.05$.

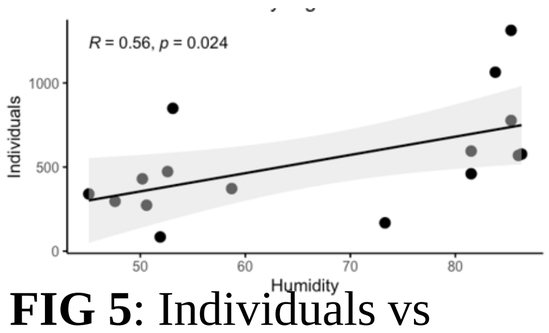


FIG 5: Individuals vs Humidity regression graph

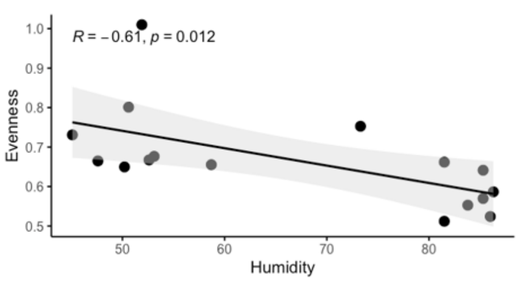


FIG 6: Evenness vs Humidity regression graph

❖ Conclusion

1.There is a statistically significant difference in species number and individuals between rural areas and suburban grassland, as well as between rural areas and reserve forests.

2. This study shows a positive correlation between individual butterfly numbers and humidity, while species evenness and humidity correlate negatively.

❖ References

Habel, J. C., Teucher, M., Gros, P., Schmitt, T., & Ulrich, W. (2021). Land use and climate change affects butterfly diversity across northern Austria. *Landscape Ecology*, *36*(6), 1741–1754.

Sharma, N., & Sharma, S. (2021). Assemblages and seasonal patterns in butterflies across different ecosystems in a sub-tropical zone of Jammu Shiwaliks, Jammu and Kashmir, India. *Tropical Ecology*, *62*(2), 261–278.