PRE INVESTIGATION SURVEY OF BIODIVERSITY ON PROPOSED SOLAR ENERGY PARK INTHE THAR DESERT WESTERN RAJASTHAN

Dharna Vyas[1], Dr G.R Parihar[2]*

Abstract:
Every landscape has its own different ecology, which occupy many trees and many perennial and annual herbs and shrubs on that particular landscape. This ecology forms a unambiguous environmental niches. Every ecosystem on this earth has its own importance but out of these ecosystems desert ecosystem has its own significant role on the land surface. We observed that many plant species provide support to flourish animal species in non-panel land in comparison with panel land in Bhadla (Phalodi) and Dhursar (Pokhran) in different season. The central government of India's solar policy, the Jawaharlal Nehru National Solar Mission (JNNSM), has set a goal of 20 GW of solar installations by 2022. India has a large solar energy potential; approximately 5,000 trillion kWh of electrical power is incident over India's land area each year, with most areas receiving 4-7 kWh per square meter per day. The intensity of solar energy varies geographically in India, but Western Rajasthan receives the most annual solar radiation power. We studied different co-dominate species in these area and their relationship with different animals. Each and every landscape supply diverse resources. these stock plays a pivotal role in ecosystem balance and reduce risk of natural calamities like floods, famine, draught and pollution.

Key words: Landscape, Desert, Panel Land, Non- panel Land, Orans, Gauchers, Fallow land,Magara.

[1,2*]Department of Zoology, Faculty of Science, Jai Narain Vyas University, Jodhpur-342005 (Rajasthan), India Email Id: grpariharjnvu08gmail.com, dharnavyas02@gmail.com

***Corresponding Author: -** Dr G.R Parihar
*Department of Zoology, Faculty of Science, Jai Narain Vyas University, Jodhpur-342005(Rajasthan), India Email Id: grpariharjnvu08gmail.com, dharnavyas02@gmail.com

DOI: - 10.48047/ecb/2023.12.si5a.0424

Introduction:
The term biodiversity is a combination up of two words: bio (life) as well as diversity (variety).The concept of biodiversity refers to the diversity of biological life on multiple scales. It is not only the diversity of species (both animal and plant), additionally the diversity of genes within those species, as well as the diversity of ecosystems in which the species residue. The degree ofvariation in life is referred to as biodiversity [1,2]. Genetic variation, species variation, and ecosystem variation are all examples of this. Solar Energy is a huge blessing to the Thar Desert. The climatic condition of desert makes it suitable for the establishment of the solar panel installation [3,4,5].

Figure 1: Solar Power Project applications in Rajasthan

Methods: Survey of flora were conducted at Solar Energy Park's different site in differentseasons.

a) Field visit and Field survey: Random filed visits and surveys were conducted in the study area, Bhadla Phalodi and Dhursar Pokran [6,7,8].
b) Interview: By taking interview of the people living in that area, working in the solar plants, visitors by a format of several questions to extract out the information about the dominating plant species of that area and plant animal relationship of the area [9].
c) Sampling and counting Plant species: we used several standard methods for recording species(Kent 2012), we randomly survey in the study area at Phalodi and Pokran . We took a random central point and using line transect of 100 square meters nearest Bhadla (Phalodi) and Dhursar (Pokran) in proposed area of solar plant and we took 10 quadrates of 10 sq m. each to inspect the accessibility of natural resources. Trees, grasses and herbs were recorded as sighted in these plots also randomly selected. Tree test method, Transect and Quadrate Layout, Plant richness and environmental variables (Pausas et al.(2003). Analysis of the statistical data: the observed data put on record and then look over to interpreted desired results by using (Wartenberg, 1989). The patterns presented is that of tree, graze and browses resources availability and is based on the results of the ecological study outlined above, along with conversations with producers, field observation, and additional transects laid during different seasons in a distribution of resources in different landscapes [10,11,12,13,14,15].

Observation: We randomly observed different grass species and tree species at different study area at Phalodi and Pokran in different season at different landscape of the Rajasthan (India).

Table 1 – Showing the number of grass species in rainy season in different landscape

Season	Type of landscape	No of grass species
	Oran	75
Rainy Season	Gaucher	52
	Fallow/Agricultural	62
	Magra	55
	Sand dune	52

Table 2 – Showing the number of grass species in winter season in different landscape

Season	Type of landscape	No of grass species
	Oran	40
	Gaucher	42
Winter	Fallow/ Agricultural	55
	Magra	30
	Sand dune	32

Table 3 – Showing the number of grass species in summer season in different landscape

Season	Type of landscape	No of grass species
	Oran	32
	Gaucher	22
Summer	Fallow/ Agricultural	20
	Magra	18
	Sand dune	12

Table 4 – Showing the number of tree species in rainy season in different landscape

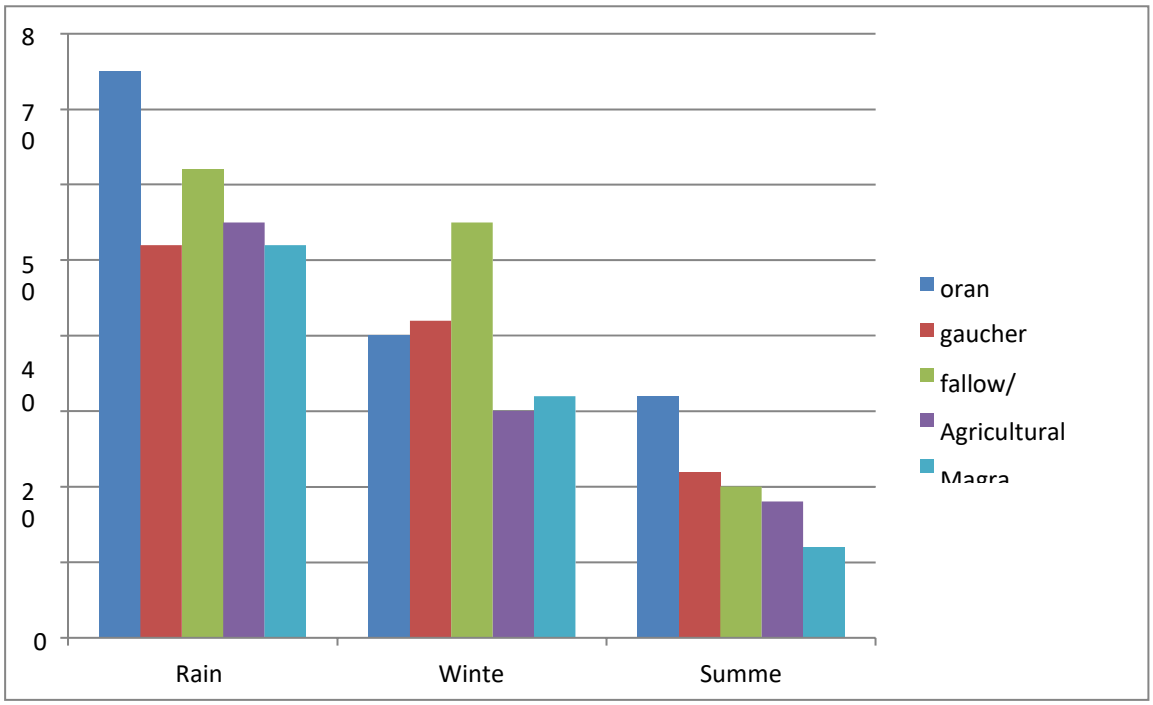
Season	Type of landscape	No of trees species
	Oran	50
	Gaucher	18
Rainy	Fallow / Agricultral	08
	Magra	17
	Sand dune	15

Table 5 – Showing the number of tree species in winter season in different landscape

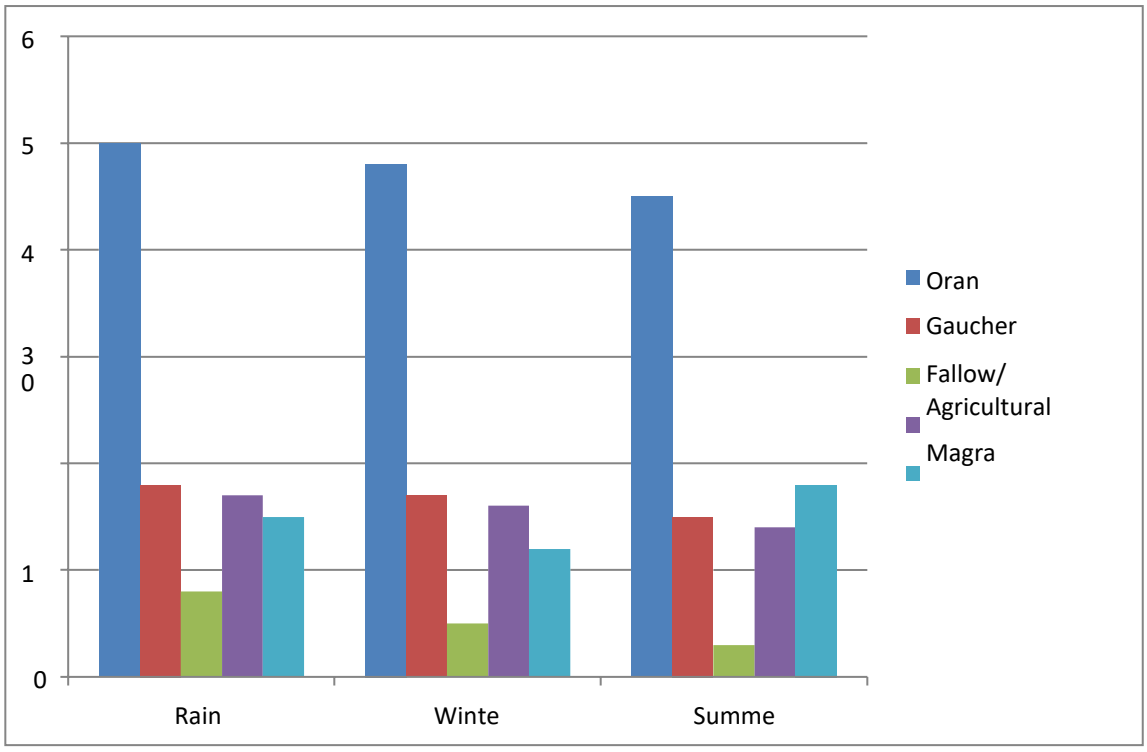
Season	Type of landscape	No of tree species
	Oran	48
	Gaucher	17
Winter	Fallow / Agricultural	05
	Magra	16
	Sand dune	12

Table 6- Showing the number of tree species in summer season in different landscape

Season	Type of landscape	No of tree species
	Oran	45
	Gaucher	15
Summer	Fallow/ Agricultural	03
	Magra	14
	Sand dune	08



Graph 1- Showing no of grass species in different season in different landscapes



Graph 2- Showing no of tress in different season in different landscape

Table 1:- Showing no of fauna in different landscape in summer season.

Season	Landscape	Arthropods	Amphibians	Reptiles	Aves	Mammals
	Oran	5	0	8	13	4
	Gaucher	3	0	5	10	3
SummerSeason	Fallow/ AgriculturalLand	2	0	4	9	3
	Magra	3	0	6	8	4
	Sand dunes	3	0	4	6	4

Table 2:- Showing no of fauna in different landscape in rainy season.

Season	Landscape	Arthropods	Amphibians	Reptiles	Aves	Mammals
	Oran	8	2	4	30	6
	Gaucher	7	1	3	25	4
Rainy Season	Fallow/AgriculturalLand	9	0	3	20	6
	Magra	8	1	4	27	4
	Sand dunes	7	0	5	21	5

Table 3:- Showing no of fauna in different landscape in winter season.

Season	Landscape	Arthropods	Amphibians	Reptiles	Aves	Mammals
	Oran	5	0	2	18	4
	Gaucher	3	0	3	15	3
WinterSeason	Fallow/AgriculturalLand	6	0	2	28	4
	Magra	4	0	3	24	5
	Sand dunes	5	0	3	15	4

Results: The data is carried out in three season's summer, rainy and winter respectively.
Annual Grasses: In Rainy season the variety of annual grasses are present in very high number, almost all species of grasses are present in oran, fallow and gaucher. In winter season the availability of grasses in oran land is upto the mark. But in fallow and gaucher landscape the no of annual grass reduced in comparison to oran landscape. In summer season the availability of grasses is present near the predominant endemic tree species present in these landscapes, showing plant community relationship.

Trees: In rainy season the maximum tree species diversity present in oran, gaucher and fallow land. In winter season the number of plant species somehow reduced in gaucher and fallow land. In summer season only few species present in these landscapes.
Animals: In rainy season few species of amphibian seen in oran, gaucher and magra landscape whereas in other season amphibians are not seen. In oran landscape due to presence of mix perennial and annual coverage, number of animals seen throughout the season. Trees cover is highin orans, providing food, shade to animals and space for burrows and birds form nest on the branches. In winters very less animals are seen in all landscapes.

Discussion:
The realities of ecological and statistical analysis must be considered preliminary and tenuous. A more complete survey is necessary the small size make definitive conclusion difficult. The results are highly suggestive however and reinforce claims by locals that each institutional area is fundamentally different in its characteristics and role in village life.

Conclusion:
The desert of Thar is the Indian subcontinent's most geomorphically changing region. The variety of present-day terrain, with significant planation (hamadas) relief and extensive dunesof sand areas, exemplifies the region's complex geological history.

We have highlighted critical success factors and aspects of the enabling environment for a region that has been more successful in implementing solar energy development. Because solar energy generation is expensive and requires a special enabling environment for success, the global pace of development of solar energy systems has been generally slow. As political and social and past framework circumstances influence the execution of new renewable energy options, the the state of Rajasthan Solar Energy Strategy 2011 and the State of Rajasthan's commitment to developing additional essential infrastructure such as solar energy parks and power evacuation systems are likely to accelerate the pace. Hopefully, the state of Rajasthan will be ready to capitalize on the opportunity if the issues we've discussed here are addressed rapidly and properly.

Acknowledgments: The geomorphology and Survey of Biodiversity on proposed Solar Energy Park in the Thar Desert Western Rajasthan study in the Thar Desert area of western Rajasthan was carried out with a support of Department of Zoology, Faculty of Science, Jai Narain Vyas University, Jodhpur-342005 (Rajasthan), India

Authors' contribution: All the authors have contributed in the field studies.

Conflicts of Interest: The author declares no conflict of interest.

References:

1. Pandey, S., Singh, V. S., Gangwar, N. P., Vijayvergia, M. M., Prakash, C., & Pandey, D. N. (2012). Determinants of success for promoting solar energy in Rajasthan, India. *Renewable and Sustainable Energy Reviews*, *16*(6), 3593–3598. https://doi.org/ 10.1016/j.rser.2012.03.012
2. Rustage, K., Chouhan, P., Kapoor, K., Kumar, M., Baniya, B., & Jain, V. (2023). A scoping review on recent progress on purpurin and its derivatives. *Letters in Drug Design & Discovery*, *20*. https://doi.org/ 10.2174/1570180820666230220124204
3. Sheoran, V. (2010). Soil Reclamation of Abandoned Mine Land by Revegetation: A Review
4. In *Scholarworks.Umass.Edu* (Vol. 3, Issue 2, p. 13). احی‌ای خاک معدنی زمین رها شده توسط پوشش گیاهی.
5. Baniya, B. (2022). Antidiabetic Activity of Fruits of Withania Coagulanus Dunal in Streptozocin
6. Induces Diabetic: a Review. *International Journal of Pharmaceutical Sciences and Allied Sciences*, 985–992. https://www.researchgate.net/publication/360235073
7. Yield, E., & Trust, P. (2022). *Parekh NOTICE TO INVESTORS 1 DEFINITIONS AND ABBREVIATIONS 6 OVERVIEW OF THE ANZEN TRUST .18 FORMATION TRANSACTIONS IN RELATION TO THE ANZEN TRUST 20 SUMMARY COMBINED FINANCIAL STATEMENTS23 SUMMARY FINANCIAL INFORMATION OF THE SPONSOR29 SUMMARY FINANCIAL*.
8. Patel, K., Wright, D. J., & Desborough, J. (2011). International Journal of Pharmacy Practice.
9. *Life*, *19*(4), 34–36. https://doi.org/ 10.37532/2249-1848-2023.13(2).31
10. Sharma, G. (2013). A review on the Studies on Faunal diversity , status , Threats and Conservation of Thar Desert or Great Indian Desert Ecosystem. *Biological Forum – An International Journal 5(2):*, *5*(2), 81–90.
11. Parihar, G. R. (2015). *Faunal Diversity Richness of Ecological Institute In The Village Landscape Of The Thar Eco-Region Rajasthan, India*. *International journal of engineering, management & sciences (IJEMS)* ISSN-2348-3733, *6*, 6–8.
12. Baniya, B. (2021). *NEWER ADVANCE HEALTH BENEFITS OF ADUSA (JUSTICIA ADHATODA)*. *10*(4), 1180–1185. https://doi.org/10.20959/wjpps20214-18688
13. Charan, P. D. (2018). *Floral Diversity of Thar Desert of Western Rajasthan,*. *July*.
14. Sharma, K. K., & Mehra, S. P. (2009). The Thar of Rajasthan (India): Ecology and conservation of a desert ecosystem. *Faunal Ecology and Conservation of the Great Indian Desert*, 1–11. https://doi.org/ 10.1007/978-3-540-87409-6_1
15. Kumar, N., & Khan, J. B. (2022). *Loss of Flora of Ethnobotanical Significance in Indian Thar Desert and its Conservation Strategies*. *6*(3), 225–231.
16. Chhangani, A. K., & Sc, D. (n.d.). *Various Ecological Conditions Aravalli Hills Vindhya Hills Chambal area Thar Desert Agricultural land*. 1–20.
17. Islam, M. Z. ul, & Rahmani, A. R. (2011). Thar Desert, Rajasthan, India: Anthropogenic influence on biodiversity and grasslands. *Biodiversity*, *12*(2), 75–89. https:// doi.org/10.1080/ 14888386. 2011. 585931
18. Meena, S. S., Tripathi, A., Koli, V. K., & Awan, M. A. (2021). Rediscovery of the rare Desert Grizzled Skipper Spialia doris evanida Butler, 1880 (Hesperiidae: Pyrginae) from the Thar Desert, Rajasthan, India. *Journal of Threatened Taxa*, *13*(3), 18042–18044. https://doi.org/10.11609/ jott.6348. 13.3.18042-18044