

Plant Diversity and Distribution Patterns Around Shrine of Peer Patang in District Mianwali, Punjab-Pakistan

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Abstract: The problem of the area of flora identification in a particular territory is one of the most difficult and little discussed. Flora as a list of species of higher vascular plants is inextricably linked with two most important parameters: the size of the territory (in sq. km) and the number of species. The number of species must be sufficient to represent the main features of the flora for the climatic zone and local characteristics. Plant identification of specific area is necessary because it provides basic knowledge to know about plant environmental behavior, their adaptation, and their growing season under the changeable climate conditions. This study aims to identify new species establishment around Shrine of Peer Patang in District Mianwali, Punjab-Pakistan, where this area has an unique floral diversity due to its geographical location near the river Indus, thus there is a huge gap of flora documentation there. Fifty plant species were recorded, belonged to 37 genera and 21 Families. Poaceae was the most represented family, while *Acacia*, *Cenchrus*, *Cyperus* were the most represented genera. Wetlands, rangelands were the most enriched habitats. Plants distribution differed between habitats due to the different soil composition. It is concluded that the Indus river had a great impact on soil quality and plant distribution patterns. These findings provide that the high fertile soil in this area will lead to elevation of plant diversity, so this will support the sustainable development there.

Keywords: Floral Diversity, Shrine of Peer Patang, Indus River, Soil Fertility and Sustainable Development

1. Introduction

Identification of plant species along with the description of that area is necessary because it provides basic knowledge to know about its growing season, new species establishment and effect of climate change [1]. Study about floral diversity is often source of botanical information about particular area and good starting point for detailed study [2, 3].

Rangelands are essential for the natural vegetation; they cover about 50% of the world land [4]. Majority of the rangelands are open lands that have unique kind of floral diversity and they have location in the vegetation biomes like Deserts, shrub lands, wetlands and savannas. These areas often tolerate climatic changes like low rainfall,

seasonal temperature fluctuations etc. [5, 6]. Pakistan has much floral diversity in its rangelands; almost 60% of the area of Pakistan is classified as rangelands having arid and semiarid lands [7]. Range lands are playing key role for environment because they provide different types of vegetation, soil cover, cheap forage for livestock and increasing nutritive value [8-10].

Floral diversity in the desert area mostly consists of xerophytes, which tolerate drought, high temperature and low moisture. Mostly plants complete their lifecycle in short period of time. Several plant species emerge after rain [11].

Floral diversity in the desert area always faces droughts because annual rainfall is very low, sometime extends for 2-3 years result in the species loss [12] Annual rainfall plays

important role in floral diversity because desert life is difficult to sustain without this. Weather remains very harsh, soil dry which leads to partial eradication, in result plant species emerge that are not palatable having low nutritional values. Increasing population and grazing pressure resulting in desertification [13-15].

Wetlands are important because they are good source of floral diversity along with this they are productive ecosystem in the world; occupy 6% of the total land in the world. Wetlands have been modified and drained to produce agricultural crops and this degradation effected wild life species and wetlands functions. Wetlands are declining due to fast growing human population.

Rangeland around Shrine of Monk Peer Patang is located in District Mianwali, Punjab Pakistan. Aims and objectives of the study were to investigate the floral diversity found in this rangeland because it has unique kind off area consist of wetlands, Desert and arid to semiarid zone and was not previously explored. [16, 17].

2. Materials and Methods

Peer Patang shrine is 8-9 kilometer away from Mianwali district, located near the border of river Indus at the latitude of 32.53, 71.50. Arid to semiarid condition in the area sometime rising water in Indus river causes flooding in the area in moon soon period of summer.

Extensive survey was conducted from January to December 2021 especially in moon soon season and samples

of plant species present around the Shrine of Peer Patang rangeland, in District Mianwali; Punjab-Pakistan were collected, hard pressed and dried out later pasted in herbarium sheet for record. The entire plant sample species were identified with the help of flora of Pakistan, photograph of habitat was taken as original habitat and 10 permanent quadrates (each of 50 m²) were laid at every site. Data was recorded from above mention area in January to December especially in the Moon Soon season of year 2021. The Identified plant species were documented according to [18] and [19].

3. Results

In the present study work 50 plant species belonging to 37 genera and 21 families were recorded from rangeland all around the shrine of Peer Patang in district Mianwali. Poaceae was the most represented family (16 species = 32% of the total), followed by Fabaceae (6 species = 12% of the total). *Acacia*, *Cenchrus* and *Cyperus* were the most recorded genera (3 species of each = 6% of the total), followed by *Prosopis*, *Sporobolus*, *Tamarix* and *Typha* (2 species of each = 4% of the total) (Table 1). Rangeland was found to be very unique due to wetlands, desert and arid to semi-arid areas. Floral diversity was found to be different in different types of soil condition. Some areas were found to be under drought and therefore were reduction in population of plant species. Some plant species were dominate in the area like *Acacia nilotica*, *Chrysopogon serrulatus*, *Tamarix dioica* (Table 1).

Table 1. Floral diversity of Rangeland Around Shrine of Peer Patang in District Mianwali, Punjab-Pakistan, the recorded species were verified according to [18] and [19].

No.	Scientific name	Family	No.	Scientific name	Family
1	<i>Achyranthes aspera</i> L.	Amaranthaceae	26	<i>Peganum harmala</i> L.	Nitrariaceae
2	<i>Phoenix dactylifera</i> L.	Arecaceae	27	<i>Aeluropus lagopoides</i> (L.) Thwaites	Poaceae
3	<i>Calotropis procera</i> (Aiton) W. T. Aiton	Asclepidaceae	28	<i>Alopecurus aequalis</i> Sobol.	
4	<i>Parthenium hysterophorus</i> Adans.	Asteraceae	29	<i>Aristida adscensionis</i> L.	
5	<i>Xanthium strumarium</i> L.		30	<i>Cenchrus agrimonioides</i> Trin.	
6	<i>Capparis decidua</i> (Forssk.) Edgew.	Capparidaceae	31	<i>Cenchrus ciliaris</i> L.	
7	<i>Salsola imbricata</i> Forssk.	Chenopodiaceae	32	<i>Cenchrus pennisetiformis</i> Steud.	
8	<i>Suaeda vermiculata</i> Forssk. ex J. F. Gmel.		33	<i>Chrysopogon serrulatus</i> Trin.	
9	<i>Cressa cretica</i> L.	Convolvulaceae	34	<i>Cymbopogon jwarancusa</i> (Jones) Schult.	
10	<i>Citrullus colocynthis</i> (L.) Schrad.	Cucurbitaceae	35	<i>Cynodon dactylon</i> (L.) Pers.	
11	<i>Cyperus compressus</i> L.	Cyperaceae	36	<i>Dactyloctenium scindicum</i> Boiss.	
12	<i>Cyperus esculentus</i> L.		37	<i>Digitaria ciliaris</i> (Retz.) Koeler	
13	<i>Cyperus rotundus</i> L.		38	<i>Ochthochloa compressa</i> (Forssk.) Hilu	
14	<i>Fimbristylis dichotoma</i> (L.) Vahl		39	<i>Saccharum bengalense</i> Retz.	
15	<i>Schoenoplectiella juncooides</i> (Roxb.) Lye		40	<i>Sporobolus acinifolius</i> Stapf	
16	<i>Scleria verrucosa</i> Willd.		41	<i>Sporobolus ioclados</i> (Trin.) Nees	
17	<i>Acacia fleckii</i> Schinz	Fabaceae	42	<i>Stipagrostis plumosa</i> Munro ex T. Anderson	
18	<i>Acacia modesta</i> Wallich		43	<i>Anagallis arvensis</i> L.	Primulaceae
19	<i>Acacia nilotica</i> (L.) Willd. Ex Delile sub sp. tomentosa (Benth.) Brenan		44	<i>Ziziphus nummularia</i> (Burm. f.) Wight & Arn.	Rhamnaceae
20	<i>Dalbergia sissoo</i> DC.		45	<i>Salvadora oleoides</i> Decne.	Salvadoraceae
21	<i>Prosopis cineraria</i> (L.) Druce		46	<i>Verbascum thapsus</i> L.	Scrophulariaceae
22	<i>Prosopis juliflora</i> (Sw.) DC.		47	<i>Tamarix aphylla</i> (L.) H. Karst.	Tamaricaceae
23	<i>Eucalyptus camaldulensis</i> Dehnh.	Myrtaceae	48	<i>Tamarix dioica</i> Roxb. ex Roth	
24	<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	49	<i>Typha angustifolia</i> L.	Typhaceae
25	<i>Neurada procumbens</i> L.	Neuradaceae	50	<i>Typha Latifolia</i> L.	

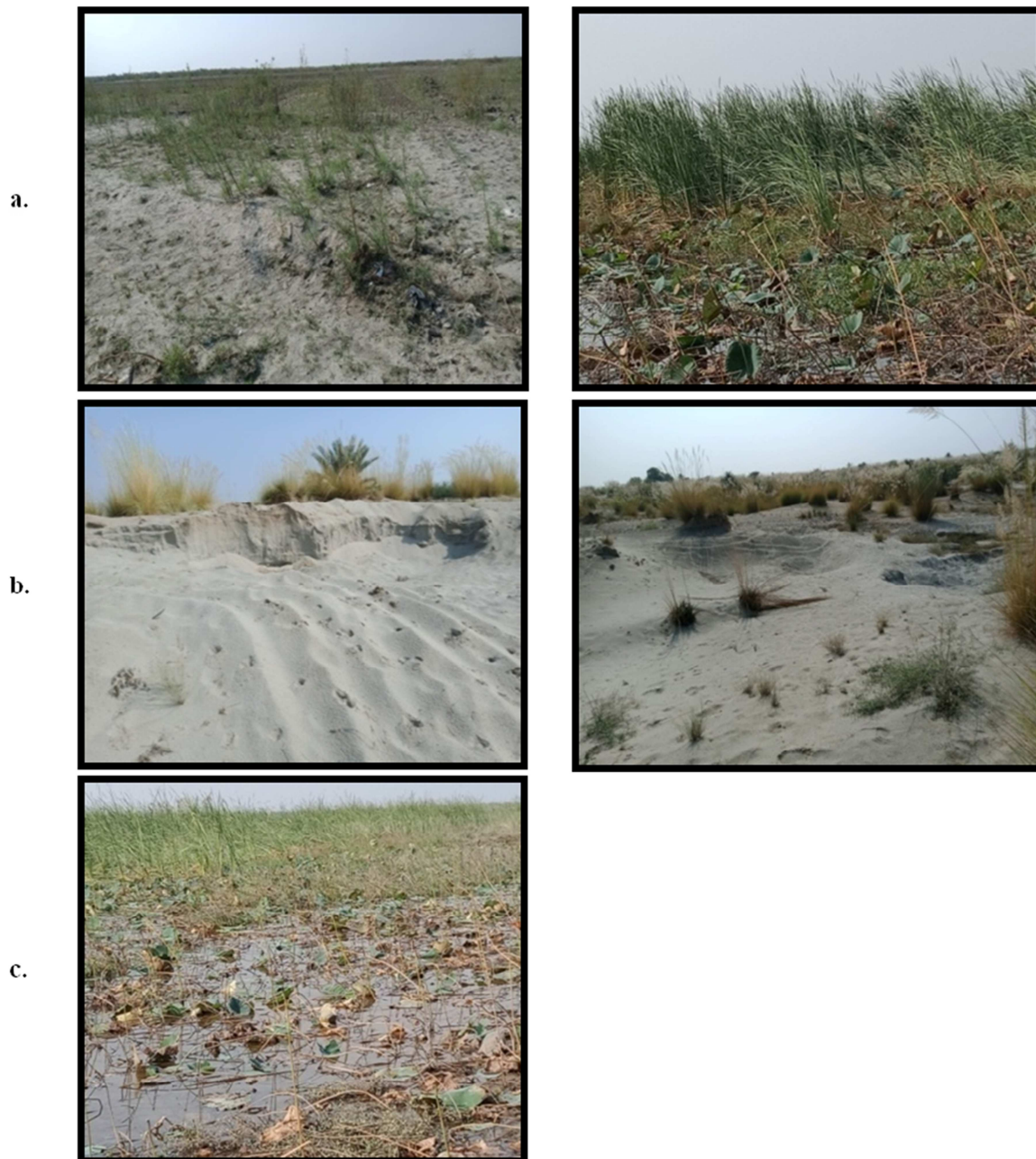


Figure 1. Habitat of range land around Shrine of Peer Patang, where **a.** rangeland formed with years due to presence of wetlands, **b.** desert and semi-desert habitats, while **c.** wetlands, rangeland in its primitive stage.

4. Discussion

In the present research work; floral diversity of the rangeland is distributed different due to different kinds of soil and environmental pressure. *Chrysopogon serrulatus*, *Cymbopogon jwarancusa*, and *Ziziphus nummularia* were found greater in number in the desert site of rangeland while wetland site of the rangeland was occupied with *Typha Latifolia*, *Typha angustifolia* and *Nelumbo nucifera*. *Prosopis juliflora* and *Peganum harmala* were dominate in Semiarid and arid site.

Some plant species that can tolerate in environmental stresses were planted in different areas of Punjab like

Eucalyptus micro theca which is invasive alien species and helpful for unirrigated soils. Many plant species are important because they are helping to save the environment and they have great contribution to the economy of the country.

Rangelands are found all over the world they are best source of forage for grazing animals. From the above discussion it can be concluded easily that floral diversity of rangeland area around shrine of Peer Patang in district Mianwali is unique due to its different types of soil conditions. All the species are distributed according to prevailing environmental conditions and they are best for cover and nutritive point of view. It is concluded that study area should be focus for biodiversity conservation point of view and proper management is required through professionals.

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